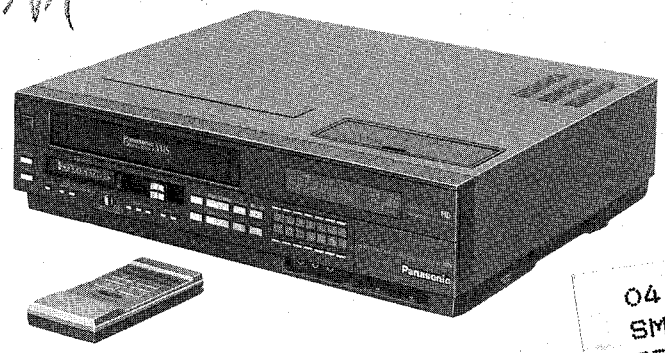
ORDER NO. VRD-8408-615
B3

# Service Manual

Video Cassette Recorder

J 1011



Panasonic Omnivision VHS

# PV-1631M

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SM-PV1631M 1 ST
SERVICE MANUAL

## SPECIFICATIONS

Power Source: 110/120/220/240 V AC ±10% AUTO, 50/60 Hz ±0.5%

Power Consumption: Approx. 28 watts

Television System: EIA Standard (525 lines, 60 fields) NTSC color signal

Video Recording System: 4 rotary heads, helical scanning system
Luminance: FM azimuth recording
Color signal: Converted subcarrier phase shift recording

Audio Track: 2 tracks (NORMAL), 2 channels (Hi-Fi AUDIO SOUND)

Tape Format: Tape width 1/2″ (12.7 mm), high density tape

Tape Speed: SP mode: 1-5/16 i.p.s. (33.35 mm/s)
LP mode: 21/32 i.p.s. (16.67 mm/s)
SLP mode: 7/16 i.p.s. (11.12 mm/s)

Record/Playback Time: 8 HRS. with 160 min. type tape used in SLP mode

FF/REW Time: Less than 6 min. with 120 min. type tape

Heads: Video: 4 rotary heads
Audio: 2 stationary heads, (NORMAL AUDIO SOUND)
2 rotary heads (Hi-Fi AUDIO SOUND)
Control: 1 stationary head
Erase: 1 full track erase
1 audio track erase for audio dubbing

Input Level: Video: VIDEO IN Jack (RCA type) 1.0 Vp-p, 75Ω unbalanced
Audio: AUDIO IN Jack (RCA type) (Right, Left) −20 dB, 50 kΩ unbalanced
MIC IN Jack (M3) (Right, Left) −70 dB, 4 kΩ unbalanced
TV Tuners: VHF Input: VHF Ch2-Ch13, cable channels "A"—"W", "A-2", "A-1" 75Ω unbalanced
UHF Input: Ch14-Ch83, 300Ω balanced

Output Level: Video: VIDEO OUT Jack (RCA type) 1.0 Vp-p, 75Ω unbalanced
Audio: AUDIO OUT Jack (RCA type) (Right, Left) −9 dB, 600Ω unbalanced
RF Modulated: Ch3/Ch4 switchable, 72 dBμ, (Open Voltage) 75Ω unbalanced

Video Horizontal Resolution: Color: more than 230 lines
B/W: more than 230 lines

Audio Frequency Response: 20 Hz ~ 20 kHz (Hi-Fi AUDIO SOUND) (10 dB down)

Signal-to-Noise Ratio: Video: SP: better than 43 dB
LP: better than 41 dB
SLP: better than 41 dB
(Rohde & Schwarz noise meter)

Dynamic Range: Audio: better than 80 dB (Hi-Fi AUDIO SOUND)

Wow and Flutter: 0.005% (Hi-Fi AUDIO SOUND)

Operation Temperature: 41°F—104°F (5°C—40°C)

Operating Humidity: 10%—75%

Weight: 17.2 lbs. (7.8 kg)

Dimensions: 16-15/16″(W) × 14-5/16″(D) × 4-1/4″(H) (430 mm × 364 mm × 108 mm)

Accessories Supplied:
- Wireless remote control unit
- VHF connecting cable
- 300Ω—75Ω transformer
- Twin-lead cable
- V-Lock tool

Available Tapes: 1/2″ VHS video cassette tapes
NV-T160 Approx. 1073 ft. (327 m), 160, 320, or 480 min.
NV-T120 Approx. 810 ft. (247 m), 120, 240, or 360 min.
NV-T60 Approx. 417 ft. (127 m), 60, 120, or 180 min.

Weight and dimensions shown are approximate. Specifications are subject to change without notice.

VHS

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

# INTRODUCTION

This Service Manual contains information which will allow the service technician to understand and service the Panasonc VHS recorder Model PV-1631M and the various accessories that complement the deck.
For a detailed technical explanation, please refer to the Training Manual on this model. Some of the Features incorporated in this model are: soft touch controls 14 position Electronic Tuner, 2 weeks/8 program Timer, Wireless Remote Control, One Touch Record Button (O.T.R), Picture Search, Field Still, Light Editing, a *Dolby Noise Reduction system for normal audio, Hi-Fi Audio HD Sound System, Auto Rewind, Frame Advance, Field-Slow.
This model use a multi-function display indicator which combines indicators for time, tape counter, speed, transport functions, and timer record into one easy to read digital display.
The above features plus the VHS format make the PV-1631M table top VCR's an excellent unit for your enjoyment.

Just slightly ahead of our time...Panasonic.

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* Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

# SAFETY PRECAUTIONS

## GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shileds are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.
4. USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

### LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞.

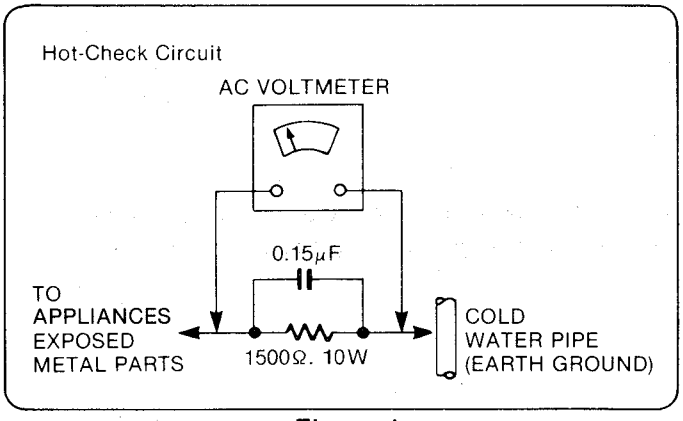



**Figure 1**

### LEAKAGE CURRENT HOT CHECK (See figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15μF capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

# ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

"NOTE to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical".

# FEATURES

Your Panasonic VCR has these special features to enhance your viewing enjoyment. Feature operations are described at the referenced page numbers. To locate other information, please refer to the Table of Contents.

**Watch one channel while recording another**

**Fine-editing**

**Multi-motion playback**

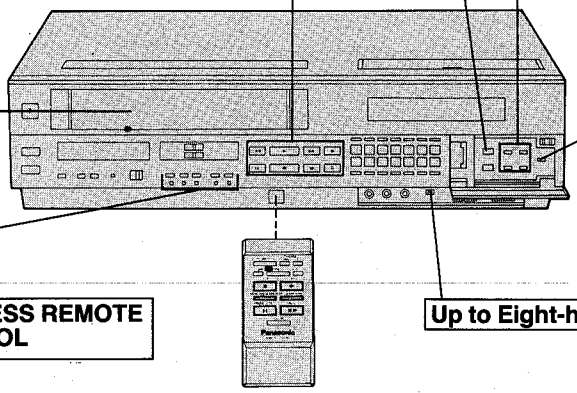
- Fast Search
- Field-Still
- Frame Advance
- Field-Slow

**Audio 2-channel**

**Cable-ready**

**DOLBY Noise Reduction System**

**Unattended (Timer) Recording**



**Front Loading**

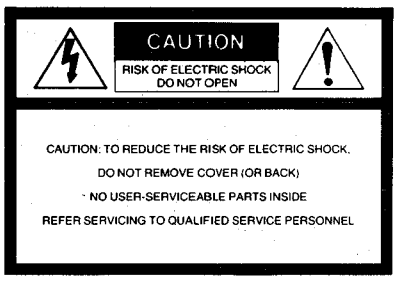
**Extended Timer One Touch Recording (240MIN)**

**Hi-Fi AUDIO HD SOUND SYSTEM**



**WIRELESS REMOTE CONTROL**

**Up to Eight-hour recording**

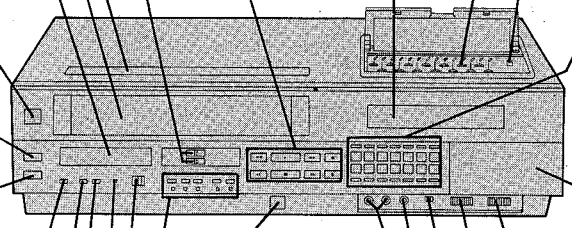


This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included.
Therefore, it should be read carefully in order to avoid any problems.

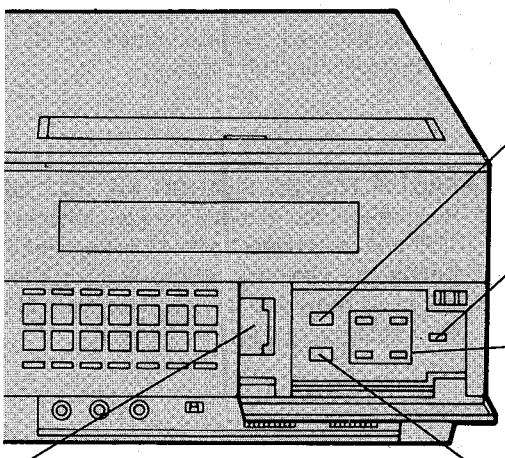
# DESCRIPTION OF CONTROLS

**TOP and FRONT**



- **CASSETTE WINDOW**
- **CASSETTE COMPARTMENT**
- **REC LEVEL METER**
  For monitoring the Audio Level durinig recording or playback.
- **EJECT BUTTON**
  Push this button to remove the cassette. "■" flashes on the Multi Function Display while the tape is being ejected.
- **POWER BUTTON**
  This button is used to turn the VCR on and off. When this button is pushed, counter appears on the Multi Function Display.
- **VCR/TV SELECTOR**
  **VCR:** To monitor video recordings or to view playback.
  **TV:** To watch TV or to view another program while recording a different program.
  When this is set to VCR, "VCR" appears on the Multi Function Display.
- **TIMER BUTTON**
  This button is used to put the VCR in Unattended Recording mode after programming functions have been completed.
  When this button is ON, " ⏲ " appears on the Multi Function Display, and you will not be able to operate the unit manually.
- **MEMORY BUTTON**
  When this button is in the "ON" position, the tape will stop when the Tape Counter reaches "0000" during rewind.
- **REC LEVEL CONTROLS**
  For manual operation of Audio Rec Level, with Hi-Fi AUDIO sound, set the REC LEVEL Switch to MANUAL and adjust both REC LEVEL Controls until the REC LEVEL Meter reads around 0 dB. This position usually indicates the best sound reception.
- **MULTI FUNCTION DISPLAY**
- **PUSH BUTTON CONTROLS**
- **WIRELESS REMOTE SENSOR**
  Receives signal from Wireless Remote Control.
- **AUDIO OUTPUT SELECT BUTTONS**
- **INPUT SIGNAL SELECTOR**
  **AUDIO:** For use this VCR as an Audio Tape Deck.
  **LINE:** For re-recording, audio dubbing or camera recording.
  **TUNER:** For regular TV recording with monaural sound recording.
  **AUDIO 2 CH:** For simulcast (stereo) recording.
- **DOLBY NR INDICATOR**
  When DOLBY NR Switch is ON. Indicator light goes on.
- **RESET BUTTON**
  Pushing this button causes the Tape Counter to return to "0000". By beginning the recording at "0000", subsequent playback will be more convenient.
- **UHF/VHF/CATV FINE TUNING CONTROLS (UNDER HINGED COVER)**
- **AUTOMATIC FINE TUNING (AFT) SWITCH (UNDER HINGED COVER)**
  Under normal conditions, leave the AFT Switch "ON".
- **CHANNEL SELECTOR BUTTONS/INDICATOR LIGHTS**
  Select the channel (2~83, A~W, A-2, A-1) you wish to view or record by pushing any one of these 14 buttons.
- **BEHIND HINGED PANEL**
- **TRACKING CONTROL**
  Use this control during regular playback if the image is partially obscured by bands of noise.
- **SLOW TRACKING CONTROL**
  If the slow-motion or still picture contains bands of noise, this control may require adjustment.
- **TAPE-SPEED SELECTOR (SP/LP/SLP)**
  Set this selector for the desired recording speed.
- **HEADPHONES JACK**
  For connecting a Headphone.
- **MICROPHONE INPUT JACK**
  For connecting a Microphone. This is useful for recording and audio dubbing.

## BEHIND HINGED PANEL



**DOLBY NR SWITCH**
Set this switch to ON for audio noise reduction. Indicator lights when ON.

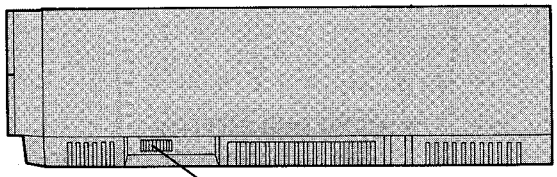
**ONE TOUCH RECORD (O.T.R) BUTTON**
One Touch Recording enables you to do impromptu recordings at any time. Just select the channel and push the ONE TOUCH RECORD Button for 30 minutes to 4 hours of recording.

**TIMER CONTROLS**
Use to set the clock or to set the Timer to make an Unattended Recording when you are away from home, busy or asleep.

**CHANNEL NUMBER HOLDER**
Pull it out for changing channel tabs.

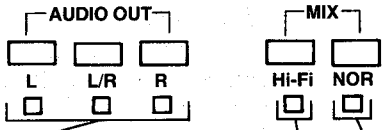
**REC LEVEL SWITCH**
When this switch is in AUTO position, audio recording level is automatically adjusted.

## SIDE



**PICTURE CONTROL**
Use this control to make the picture softer or sharper, whichever you prefer.

## AUDIO OUTPUT SELECT BUTTONS




**AUDIO OUT BUTTONS/INDICATOR LIGHTS**
One of these buttons is used to select the audio signal for the TV speaker, a Headphone, or AUDIO LINE OUT.

**NORMAL AUDIO BUTTON/INDICATOR LIGHT**
Push this button so that indicator lights for NORMAL AUDIO sound playback.

**Hi-Fi AUDIO BUTTON/INDICATOR LIGHT**
Push this button so that indicator lights for Hi-Fi AUDIO sound playback.

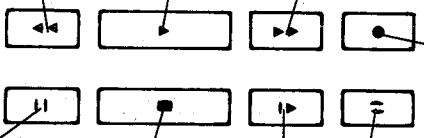
# DESCRIPTION OF CONTROLS (CONTINUED)

**PUSH BUTTON CONTROLS**

- **REWIND/SEARCH ◀◀ BUTTON**
  Push this button to rewind tapes. "REW" and "◀" appear on the Multi Function Display. During the playback mode, holding this button down will allow you to view the picture in reverse rapidly. "◀" flashes.

- **PLAY BUTTON**
  Push this button to play back recorded tapes. "PLAY" and "▶" appear on the Multi Function Display.

- **FAST FORWARD/SEARCH ▶▶ BUTTON**
  Push this button to move the tape forward rapidly. "FF" and "▶" appear on the Multi Function Display. During the playback mode, holding this button down will allow you to view the picture in the forward direction rapidly. "▶" flashes.



- **RECORD BUTTON**
  Recording is started by pushing this button and the PLAY Button at the same time. "REC" and "▶" appear on the Multi Function Display.

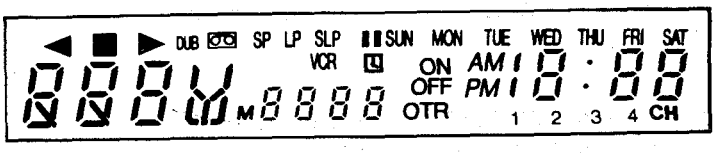
- **PAUSE/STILL BUTTON**
  Push this button to temporarily stop the tape movement in either the recording or playback mode. During playback a still picture is produced when the pause is used. Push again to release pause. When this button is pushed, "PLAY" and "■" appear on the Multi Function Display.

- **AUDIO DUB BUTTON**
  When this button and PLAY Button are pushed simultaneously, sound from another source can be recorded on the tape in place of the original sound.

- **SLOW BUTTON**
  While viewing a still picture, push this button to advance the picture one frame at a time. "▶" flashes. During the playback mode, pushing this button will allow you to view a slow-motion picture. "SLOW" appears on the Multi Function Display.

- **STOP BUTTON**
  Push this button to stop the tape. "■" appears on the Multi Function Display.

## MULTI FUNCTION DISPLAY




- **DIGITAL CLOCK**
  Normally, the present time is displayed.

- **TAPE COUNTER**
  Tape counter number is displayed.

- **FUNCTION INDICATOR " ▮▮▮▮ "**
  This shows the mode of VCR (EJECT, PLAY, REC, REW, FF, PAUSE, STILL, SEARCH, STOP, FRAME ADVANCE, SLOW).

- **DEW INDICATOR " dEW "**
  This indicator appears if excessive moisture condenses in the unit. If the DEW Indicator is ON, the unit will not operate. If this happens, leave the VCR ON and let it remain at room temperature until this indicator goes off.

- **TIMER INDICATOR " ⏲ "**
  When TIMER Button is set to ON, this indicator appears and you will not be able to operate the unit manually.

- **PROGRAM NUMBER "1", "2", "3", or "4"**
  This shows the program number for Timer Recording.

- **CHANNEL INDICATOR "CH"**
  This indicator flashes when selecting channel for Timer Recording.

- **O.T.R. INDICATOR "OTR"**
  When OTR is set, this indicator appears.

- **MEMORY INDICATOR "M"**
  When MEMORY Button is set to ON, this indicator appears.

- **DUBBING INDICATOR "DUB"**
  When audio dubbing is set, this indicator appears.

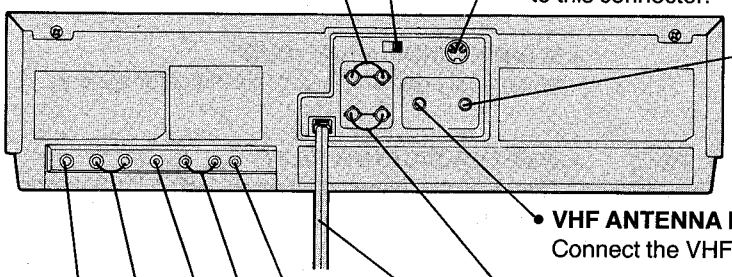
- **VCR/TV INDICATOR "VCR"**
  This indicator appears when the VCR/TV Selector is set to VCR.

- **SPEED INDICATOR "SP", "LP", "SLP"**
  This shows the tape speed during recording and playback.

- **CASSETTE-IN INDICATOR " 📼 "**
  This indicator shows the condition of the cassette tape in the unit.
  No "📼": There is no cassette in the unit.
  "📼": There is a cassette in the unit and some interval to the end of the tape.
  Flashing "📼": The automatic rewind took place at the end of tape during playback, recording or fast forward. The indicator continues flashing until the subsequent mode is set.

# DESCRIPTION OF CONTROLS (CONTINUED)

**REAR**



- **UHF ANTENNA OUTPUT TERMINALS (TO TV SET)**
  Connect these terminals to the UHF antenna terminals on the TV.
- **RF CONVERTER CHANNEL SELECTOR**
  Set to channel 3 or 4, whichever is not used in your area.
- **AUXILIARY CONNECTOR**
  If you are using the optional PV-CT2 CATV Adaptor, connect the VCR Remote Control Cord of the CATV Adaptor/PV-CT2 (optional) to this connector.
- **VHF ANTENNA OUTPUT TERMINAL (TO TV SET)**
  Connect this terminal to the VHF antenna terminal on the TV.
- **VHF ANTENNA INPUT TERMINAL (FROM ANTENNA)**
  Connect the VHF antenna to this terminal.
- **UHF ANTENNA INPUT TERMINALS (FROM ANTENNA)**
  Connect the UHF antenna to these terminals.
- **AC POWER CORD**
  Connect to a suitable voltage AC outlet.
  Use the accessory Power Plug Adaptor (VJSS0070) in an area which has special AC outlets.
- **CAMERA REMOTE JACK**
  For connection to the Remote Pause Jack of the optional camera.
- **AUDIO INPUT CONNECTOR (L/R)**
  For connection to a portable video camera or another VCR.
- **VIDEO INPUT CONNECTOR**
  For connection to another VCR or a portable video camera.
- **AUDIO OUTPUT CONNECTOR (L/R)**
  For connection to a monitor TV, another VCR or an audio tape recorder.
- **VIDEO OUTPUT CONNECTOR**
  For connection to a monitor TV or another VCR.

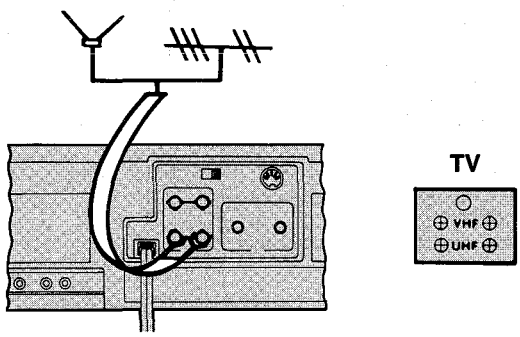
In some cases, the product may differ slightly from illustrations or photographs.
Please be assured that this difference is not due to mistake but to ongoing product improvement.

# UHF AND VCR PLAYBACK CONNECTIONS

If you receive UHF TV broadcasts, connect TV antennas to the VCR and TV as shown below.

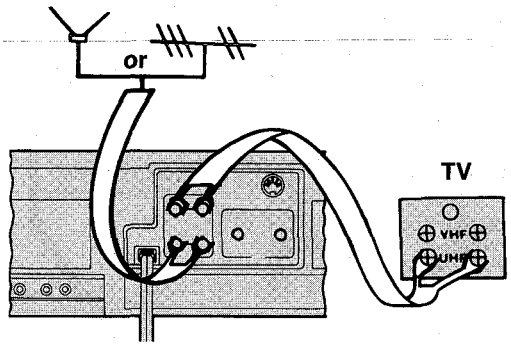
## UHF CONNECTION

① **Indoor or outdoor UHF antenna**




- Remove the UHF antenna twin lead wires from the back of your TV, and attach these wires to the UHF IN terminals of the VCR.

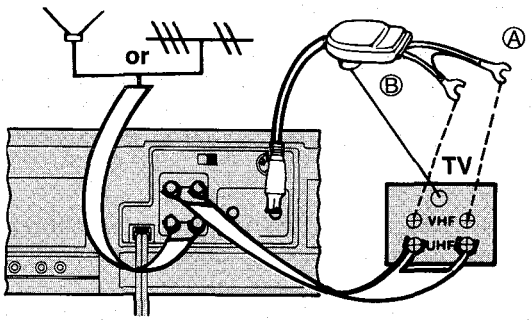
②

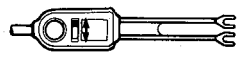



- Attach the Twin Lead (flat) Cable (supplied) to the UHF OUT terminals of the VCR.
- Attach the other end to the UHF terminals of the TV.

If you receive only UHF Channels, you must also add one of the following two connections Ⓐ or Ⓑ between your VCR and TV. This connection is necessary to view tapes in playback and to use your TV as a monitor.

- If you have only screw type VHF terminals on your TV, use connection Ⓐ. If using connection Ⓐ, set the switch of the VHF Connecting Cable to lower (300 Ω) position.
- If you have a VHF terminal on your TV, use connection Ⓑ. If using connection Ⓑ, set the switch of the VHF Connecting Cable to upper (75 Ω) position.



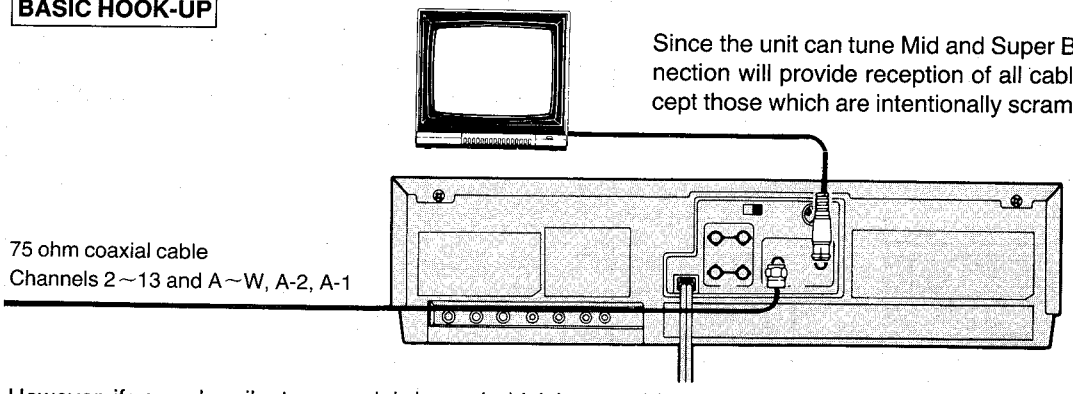
- Attach the VHF Connecting Cable (supplied) to the VHF OUT terminal of the VCR.
- Attach the other end of the cable to the VHF terminal of the TV (connection Ⓑ) or the VHF antenna terminals of the TV (connection Ⓐ).

# CABLE CONNECTIONS

## CABLE–VCR–TV (FOR CATV/PAY CHANNELS RECORDING/PLAYBACK)

The unit has an extended range, and can tune the Mid-Band and Super-Band cable channels. (Channels A~W, A-2, A-1). Also, the unit can tune to any of the 70 UHF channels (14~83). Refer to VCR FINE TUNING.

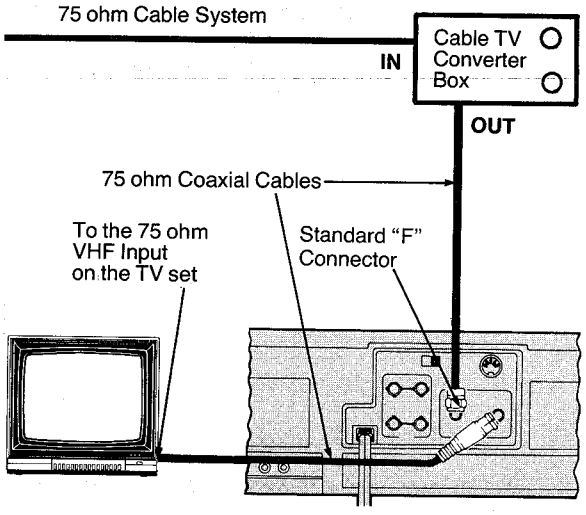
### BASIC HOOK-UP



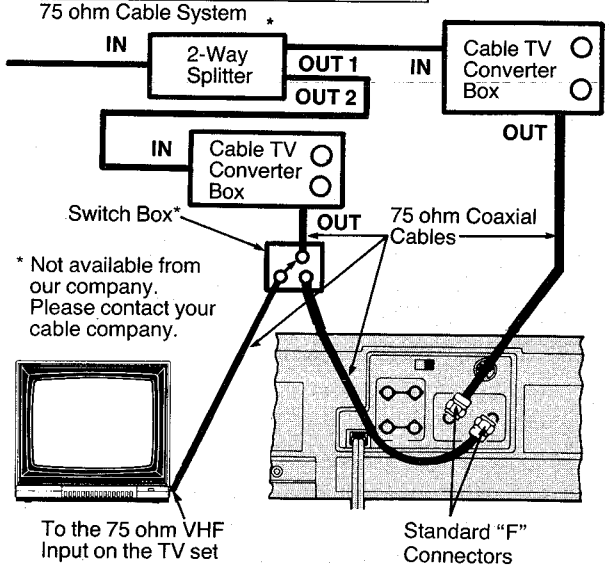

Since the unit can tune Mid and Super Bands, this connection will provide reception of all cable channels except those which are intentionally scrambled.

However, if you subscribe to a special channel which is scrambled–you probably have a descrambler box for proper reception. The PV-1631M by itself cannot properly receive a scrambled program since it does not contain a descrambler. In order for the PV-1631M to properly receive a scrambled program, your existing descrambler must be used. There are two commonly used methods of connection in this case.

### TYPICAL CABLE SYSTEM HOOK-UPS WITH CABLE CONVERTER/DESCRAMBLER BOXES




The above cable hook-up allows VCR-TV functions except for viewing one channel while recording another.




The above cable hook-up allows VCR-TV functions, including viewing one channel while recording another, but it requires two cable TV Converter Boxes, one Switch Box and one 2-Way Splitter.

Since the PV-1631M has an extended range of tuning, tuning-programming of non-scrambled Mid-Band and Super-Band TV programs is possible. When a cable converter or descrambler box is connected to the unit, all Unattended Recording functions will continue to operate with the exception of changing channels automatically. Channel selection will have to be performed with the cable converter. Unattended Recording is therefore limited to one channel at any given time.

- Using the CATV Adaptor/PV-CT2 and the cable descrambler box:
  All functions (e.g. Timer Recording, Recording one channel while watching another) will be operable for both regular TV channels and one pay TV channel. If you use the PV-CT2, refer to the Operating Instructions of the PV-CT2.

**Note to CATV system installer:**

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

# GLOSSARY OF TERMS

**ACC**

Automatic Color Control used to maintain an overall constant color signal level in the color circuits.

**ACK**

Automatic Color Killer.

**Adjacent Track**

This is the name of the video track to the immediate left or right of the track of concern.

**AFC**

Automatic Frequency Control used to phase-lock the color circuits to either the recording or playback color signal, in order to achieve a stable color signal.

**AFT**

Automatic Fine Tuning...This is a special circuit found in most recent TV sets which makes the local oscillator of the TV tuner follow the channel of concern in order to produce a stable IF frequency. In other words, if for any reason the TV station being received changes frequency, the AFT circuit will automatically compensate so that no interference will be seen on the screen, i.e., no manual fine tuning is necessary.

**AGC**

Automatic Gain Control used to maintain an overall constant picture level in the luminance circuits.

**APC**

Automatic Phase Control used to help phase lock the color circuits to either the recording or playback color signal in order to achieve a stable color signal.

**Azimuth**

A term used to describe the left to right tilt of the gap of a recording head, if it could be viewed straight on.

**Balanced Modulator**

A circuit so designed to give as an output the frequency sum or frequency difference of its two input signals. Any special characteristics of one of the input signals will be present in the output signal.

**Beats**

A term used to described the unwanted signals produced when two original signals are allowed to be mixed together.

**Bipolar PG**

Pulse Generator signals that have both positive and negative excursions.

**Burst**

A short time occurence (8 to 10 cycles) of the 3.58MHz subcarrier signal, appearing right after horizontal sync but centered on the blanking portion of the video waveform. Burst is used to keep the color oscillator of a TV receiver locked to the broadcast station.

**B/W**

Abbreviation for Black and White.

**C**

Capacitor.

**C Signal**

The color portion of a video signal.

**Capstan**

A small rotating metal dowel which drives the recording tape to assure positive tape movement.

**Chroma**

The color portion of a video signal.

**Chrominance**

The color portion of a video signal.

**Clamp**

The process of giving an AC signal a specific DC level.

**Control Signal**

A special signal recorded onto the video tape which is used during playback as a reference for the servo circuits.

**Converted Subcarrier**

This is the process of frequency shifting the color 3.58MHz subcarrier and its sidebands down to 629kHz.

**Crosstalk**

The name given to the unwanted signals obtained when a video head picks up information from an adjacent track.

**CUE**

To scan the playback picture at a faster than normal speed in the Forward direction.

**D**

Diode.

**DL**

Delay Line.

**Dark Clip**

After emphasis, the negative going spikes (undershoot) of a video signal may be too large in amplitude for safe FM modulation. A dark clip circuit is used to cut off these spikes at an adjustable level.

**DDC**

Direct Drive Cylinder...as used in VHS, this means that the video heads are driven by a self-contained brushless DC motor using no belts or gears. DD cylinders produce pictures with better stability.

**Delta Factor (Δf)**

A term used to indicate that a playback signal off the video tape has some jitter or "wow and flutter". Δf, or "a change in frequency" means that the color signal off the tape is not a stable frequency of 629kHz, but rather a signal whose frequency at any instant is some small amount above or below 629kHz.

**Deviation**

A term used to describe how far the FM carrier swings when it is modulated. In VHS the upper limit is 4.4MHz.

**Dew Detector**

A variable resistor whose resistance value depends upon the ambient humidity.

**Dihedral**

A term used to describe the relative position between the two video heads as they are mounted in the head cylinder. Perfect dihedral means that the tips of the heads are exactly 180° apart.

**Dropout**

A momentary absence of FM or color signal off the tape, whether due to uneven oxide or a coating of dust on the tape or video heads.

**Duty Cycle**

In describing a rectangular waveform, the "duty" refers to the percentage of off time and on time for one complete cycle. 50—50 means that there are equal periods of off time and on time for one cycle and this would be a square wave.

**E-E**

Electronics to Electronics...this is the picture viewed on the TV set when a recording is being made. This picture goes through some but not all of the circuits of the recorder and is used to test the operation of said circuits.

**EQ**

Shortened form of "Equalization", used in the audio circuits.

**Emphasis**

The process of boosting the level of the high frequency portions of the video signal.

**FG**

Frequency Generator used in the servo circuits.

**FL**

Filter.

**FM Signal**

The luminance portion of the video signal is used to control the frequency of astable multivibrator. The output of this multivibrator is a frequency modulated (FM) signal shifting from 3.4 MHz to 4.4 MHz (plus sidebands).

**Field**

One half of a television picture. A field consists of 262.5 horizontal scanning lines across the picture tube. Two fields are necessary to complete a fully scanned TV picture (frame). First, one field is "sprayed" on the picture tube, starting at the top of the tube with Line 1, and ending at the bottom with Line 262.5. Then, the next field begins at the top of the tube again with Line 262.5 and ends at the bottom with Line 525. The lines of the second field lie in-between the lines of the first field. This property of falling in-between lines is called "interlacing". The two sweeps of the picture tube, or two fields make up one complete TV picture of "frame". Frame repetition is 30 Hz, therefore field repetition is 60 Hz.

**Flagwaving**

This is the term used to describe a TV sets ability to accept unstable playback pictures from a video tape recorder. All home VTR's have some degree of playback instability. A TV set with a long horizontal AFC time constant may not recover from the VTR's instability before the active picture is being scanned. This can cause a bending or flapping from side to side of the top inch or so of the screen. This movement is called "flagwaving".

**Frame**

One complete TV picture. See "Field".

**Gate**

A circuit which will deliver an output only when a specific combination of its inputs are present. For use in analog or digital applications.

**Guard Band**

This is the space between video tracks on the video tape in the SP mode. Guard bands contain no information.

**Hall Effect IC**

An external magnetic field causes current to flow in this type of device.

**HD**

Horizontal Drive signal.

**Head Cylinder**

A cylindrical piece of metal which houses the video heads. The tips of the heads protrude slightly from the surface of the cylinder so that they may scan the tape as the cylinder spins.

**Head Switching**

The action of turning off during playback, the video head which is not in contact with the video tape. A particular video head will be turned off 30 times per second. This is done so that the head which is not scanning the tape, and therefore not delivering a good signal, cannot contribute any noise to the playback signal.

**Head Switching Pulse**

The signal which is applied to the Head Amplifier to perform head switching. This is a square wave at 30 Hz, with a 50—50 duty cycle.

**Helical**

A word used to describe a general type of VTR in which the tape wraps around the video head cylinder in the shape of a 3-dimensional spiral, or "helix". The video tracks are recorded as a series of slanted lines.

**IC**

Integrated Circuit.

**Interchangeability**

A term used to describe how well a particular VTR will play back a tape recorded on another VTR of the same type. Good interchangeability indicates good playback.

**Interlacing**

The property of the scan lines of two television fields to lie in-between each other. See "Field".

**Interleaving**

A term used to indicate that the harmonics of the chrominance signal lie in-between the harmonics of the luminance portion of the video signal as it is viewed on a spectrum analyzer. This means that the color information of a video signal does not interfere with, although it is broadcast at the same time as, the luminance information.

Also, signals which have this interleaving property are not readily seen on a TV screen, because of their virtual cancellation characteristics.

Interleaving signals (fi) must have the following frequency relationship:

$$fi = (\frac{2n+1}{2}) \times fH \ (n = 0, 1, 2, 3, 4.....)$$

fH = 15,734 Hz (H sync frequency)

**Jitter**

The name of the effect on the playback picture if a VTR has too much "wow and flutter". The picture appears to have a rapid shaking movement.

**L**

Coil.

**Luminance**

This is the portion of video signal which contains the sync and B/W information.

**MMV**

Monostable Multi-Vibrator...Usually an IC device which gives a logic high or low output with a variable duration upon receipt of an input pulse or transition.

**Non-Linear Emphasis**

This is similar to regular emphasis with the difference that small level high frequency portions of the signal are given more of a boost than higher level high frequency portions.

**NTSC**

The National Television Systems Committee. These four letters identify the United States color television standard.

**O.T.R.**

One Touch Recording (O.T.R.) enables you to do impromptu timer recordings at any time. When you have to go out for urgent matters or you are going to sleep, this function is very useful. Just select the channel and push the O.T.R. Button for 30 minutes to 2 hours of recordings. After recording, the VCR will be turned off automatically.

**PG**

Pulse Generator used in the servo circuits.

**Q**

A term used to describe the graphic response of a filter or tuned amplifier.

**R**

Resistor.

**Review**

To scan the playback picture at a faster than normal speed in the Reverse direction.

**RF**

Radio Frequencies.

**Rotary Chroma**

The name of the process used in VHS to change the phase of the chrominance signal at a rate of 15,734 (same as H sync frequency) times per second.

**Rotary Transformer**

A device used to magnetically couple RF signals to and from the spinning video heads, thus eliminating the need for brushes.

**Sample and Hold**

A process used in comparator circuits by which the value of a particular signal is measured at a specific moment in time...then this value is stored for later use.

**Search**

To scan the playback picture at a faster than normal speed in either the forward or reverse direction.

**Servo**

Short for Servo mechanism. This is an electro-mchanical device whose mechanical operation (for instance motor speed) constantly being measured and regulated so that it closely matches or follows an external reference.

**Skew**

Another way of saying Tension Error. Skew is actually the change of size or shape of the video tracks on the tape from the time of recording to the time of playback. This can occur as a result of poor tension regulation by the VTR, or by ambient conditions which affect the tape.

**Subcarrier**

The name of the 3.58MHz continuous wave signal used to carry color information.

**SS**

Slow and Still.

**T**

Transformer.

**TP**

Test Point.

**TR**

Transistor.

**Tension Error**

See "Skew".

**Time Base Stability**

A term used to describe how closely the playback video signal from a VTR matches an external reference video signal...in regard to sync timing rather than picture content.

**Tracking**

This is the action of the spinning video heads during playback when they accurately track across the video RF information laid down during recording. Good tracking indicates that the heads are positioning themselves correctly, and are picking up a strong RF signal. Poor tracking indicates that the heads are off track, and picking up low level RF signal or noise.

**VCO**

Voltage Controlled Oscillator...An oscillator whose frequency of oscillation is governed by an external voltage.

**Video Head**

This is the electro-magnet used to develop magnetic flux which will put RF information on the tape. In VHS, two video heads are mounted in a rotating cylinder around which the video tape is wrapped. As the cylinder spins, each video head is allowed to alternately scan the tape.

**Video Track**

The name of the RF information laid down during recording, as a particular video head scans across the tape.

**VHS**

Video Home System.

**VTR**

Video Tape Recorder.

**VV**

Video to Video...or...the actual playback picture produced from a tape during playback.

**VXO**

Voltage Controlled Crystal Oscillator...Similar to VCO except that a quartz crystal is sued as a reference which can be varied.

**White Clip**

After emphasis, the positive going spikes (overshoot) of the video signal may be too large for safe FM modulation. A white clip circuit is used to cut off these spikes at an adjustable level.

**XTAL**

Abbreviation for crystal.

**Y Signal**

The B/W portion of a video signal containing B/W information and sync.

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**IMPORTANT SAFETY NOTICE**

There are special components used in this equipment which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

# SAFETY PRECAUTIONS

## GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.
4. USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

### LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞.

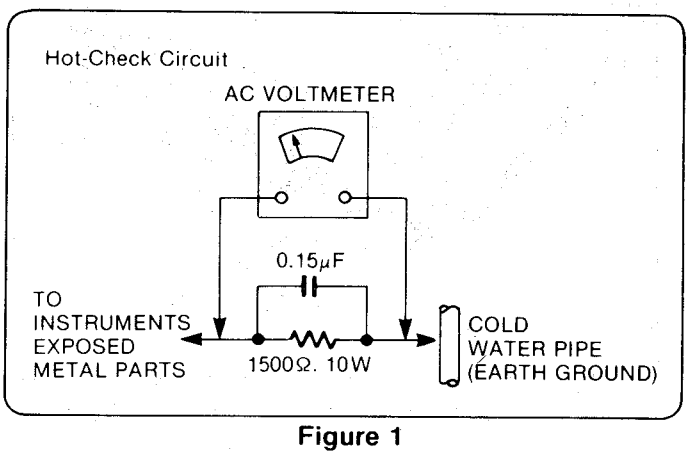



**Figure 1**

### LEAKAGE CURRENT HOT CHECK (See figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15μF capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

# MECHANICAL ADJUSTMENT PROCEDURES

## 1. DISASSEMBLY OF CABINET PARTS

### 1. DISASSEMBLY FLOWCHART

This flowchart indicates disassembly steps of the cabinet parts and the P. C. Boards in order to find the item(s) necessary for servicing. When reassembling, perform the step(s) in the reverse order. Bottom Plate can be removed separately.

Note:

1. When removing the front panel, work with care so as not to break the locking portions of the panel.
2. The 3 screws indicated by arrow marks on the bottom plate should be removed to remove the top case.

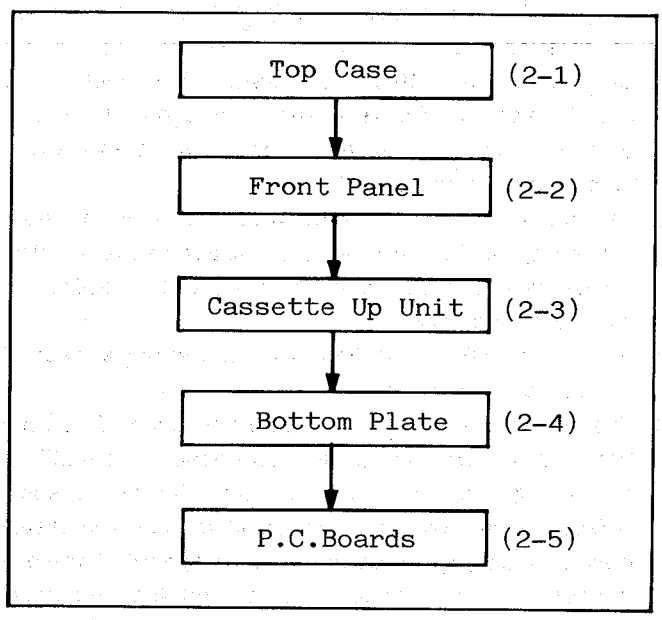



Fig. M1 Disassembly Flow Chart

### 2. DETAILED DISASSEMBLY METHOD

2-1. Removal of the Top Case

Place the deck so that the left side faces down, hold the deck with your hand and remove 3 screws (A).

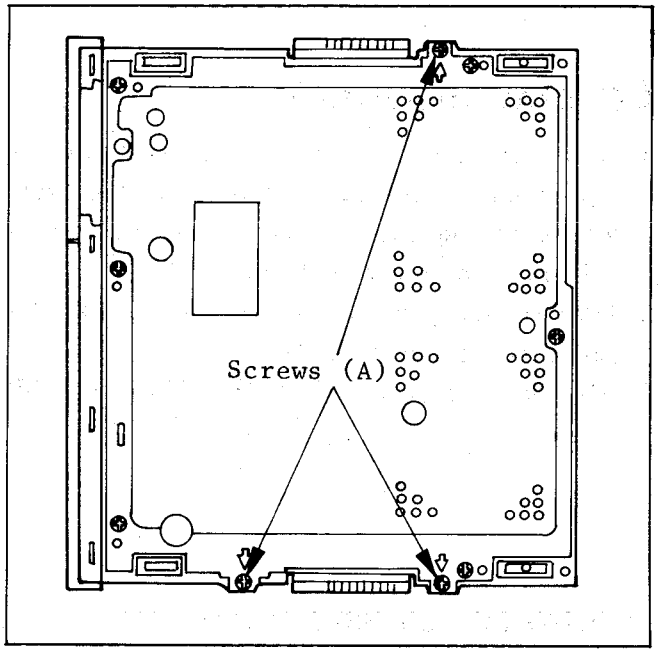



Fig. M2-1 Removal of Top Case

Remove 2 screws (B).
Then pull the top case toward the back and then carefully lift the front portion to remove.

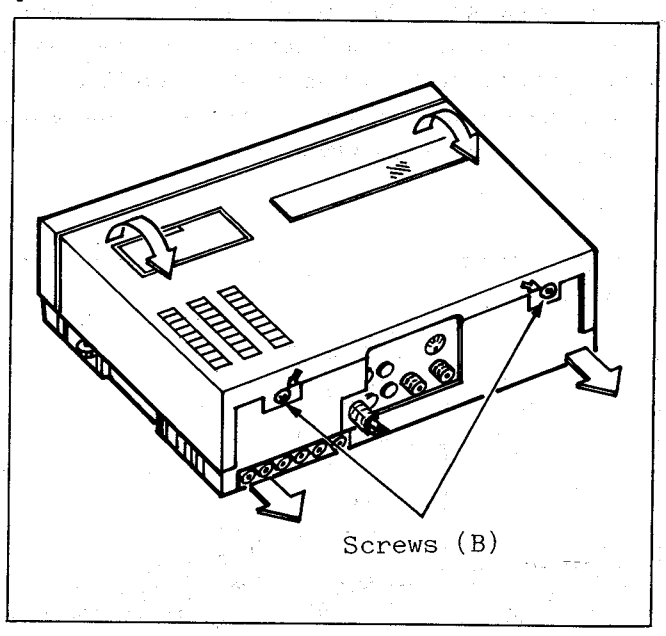



Fig. M2-2 Removal of Top Case

2-2. Removal of the Front Panel

Release 3 locking tabs. Then hold both right and left top portions of the panel and turn it towards the front of deck to remove.

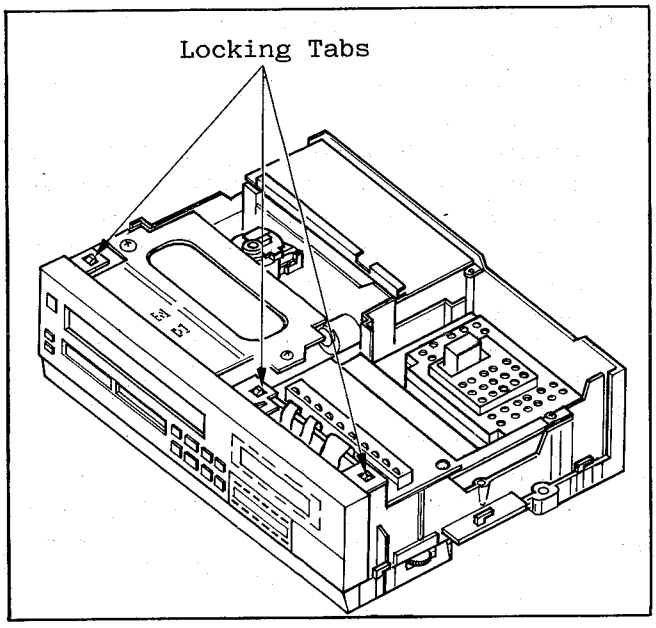



Fig. M3 Removal of front Panel

2-3. Removal of the Cassette Up Unit

Remove 3 Screws (C) and unplug the connector P1551 on Connection C.B.A.
Then remove Cassette Up Unit.
First slightly lift the left side of Cassette Up Unit and then lift right side of Cassette Up Unit.

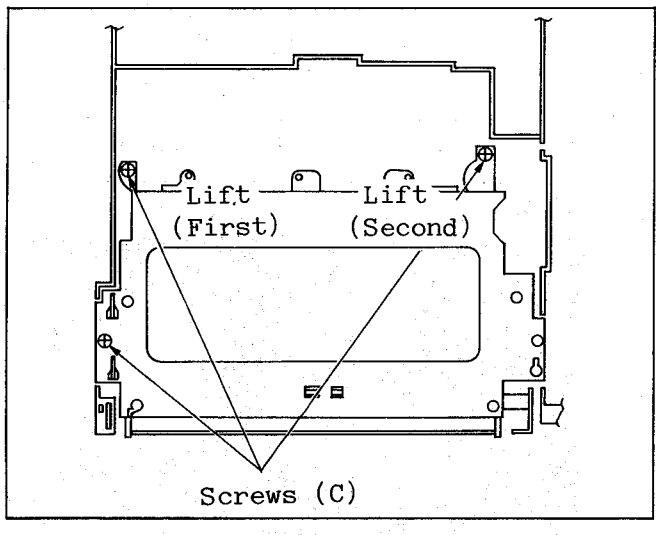



Fig. M4-1 Removal of Cassette Up Unit

2-3-1. Cassette Holder Down Position without Cassette Tape

The cassette Holder in down position without cassette tape should be done according to the following procedures for some adjustments.

1. Turns the power sw ON.
2. Insert 2 screwdrivers into the Cassette Up Unit from the front, positioning them right and left, as shown in (A) and (B) in Fig. M4-2. The screwdrivers should keep both side holder guide levers in the unlock position. By pushing down while pushing toward the rear on the Holder unit, the loading action will begin. Continue this pressure and screwdriver position until the Cassette Holder Unit clears the 3 locking tabs. After clearing the locking tabs the Cassette Up unit will move into the down position by itself.

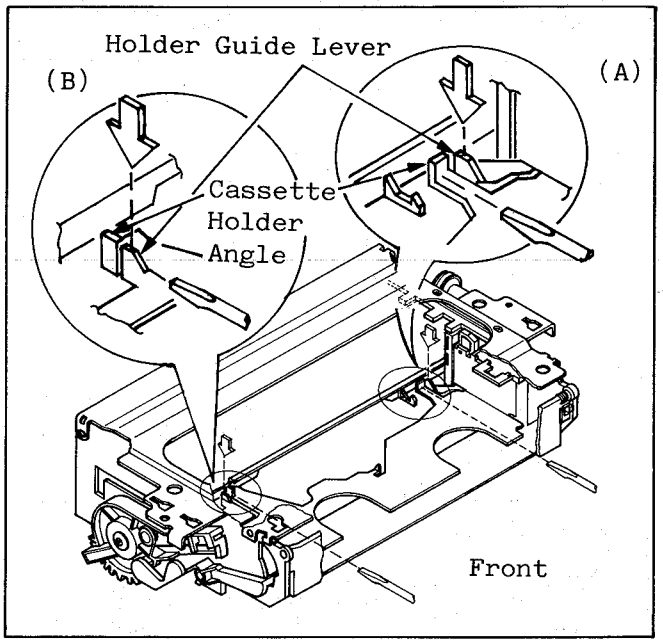



Fig. M4-2 Cassette Down Condition Without Cassette Tape

3. Connect TP6005 and GND on System Control Section through a jumper wire.
4. After the adjustment, remove the jumper wire.

Note :
When TP6005 and GND are connected through a jumper wire, Eject can be performed but not Cassette Loading.

2-4. Removal of the Bottom Plate

Place the deck so that the left side faces down, hold the deck with your hand are remove 6 screws (D).

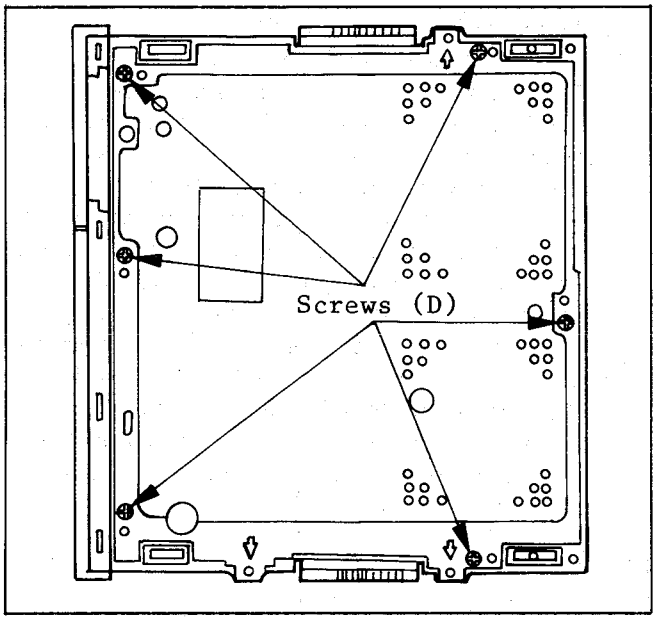



Fig. M5 Removal of Bottom Plate

2-5. Opening of the P.C. Boards (Bottom, Signal Process)
Place the deck so that the left side faces down, hold the deck with your hand.

2-5-1. Main C.B.A.
Remove 5 red screws (E) and a Locking Tab. Then open the Main P.C. Board.

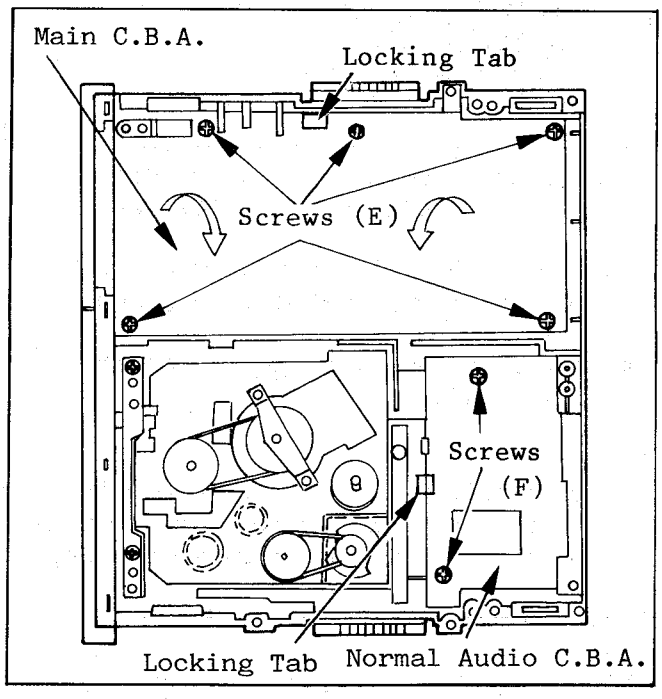



Fig. M6 Opening of P.C.Board

2-5-2. Signal Process C.B.A.

1. Disconnect the AC plug from the AC outlet.
2. Place the deck so that the left side faces down, hold the deck with your hand and remove 2 screws (F) and a locking tab on the Nornal Audio C.B.A. Then open the Nornal Audio C.B.A.
3. Remove the screw and jumper on the U/V Tuner Unit from bottom side.
4. Remove the 5 red screws (G).
5. Lift Signal Process C.B.A. Slightly and then turn the C.B.A. to set it as shown in Fig M8.
6. Remove the Top Cover Support Angle.

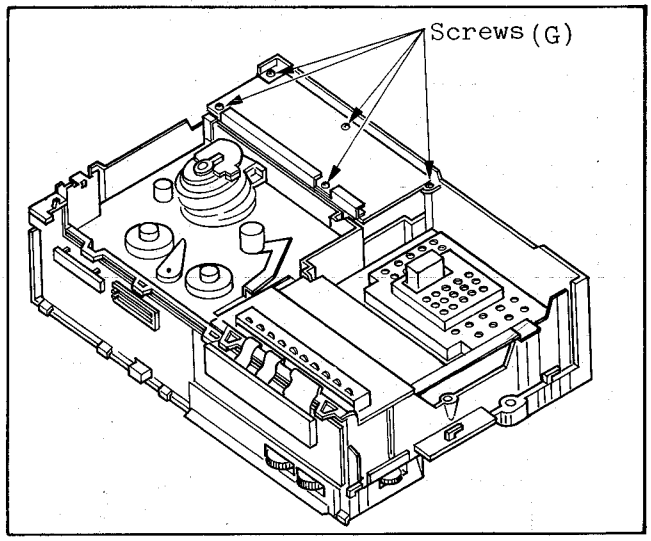



Fig. M7 Opening of P.C. Boards

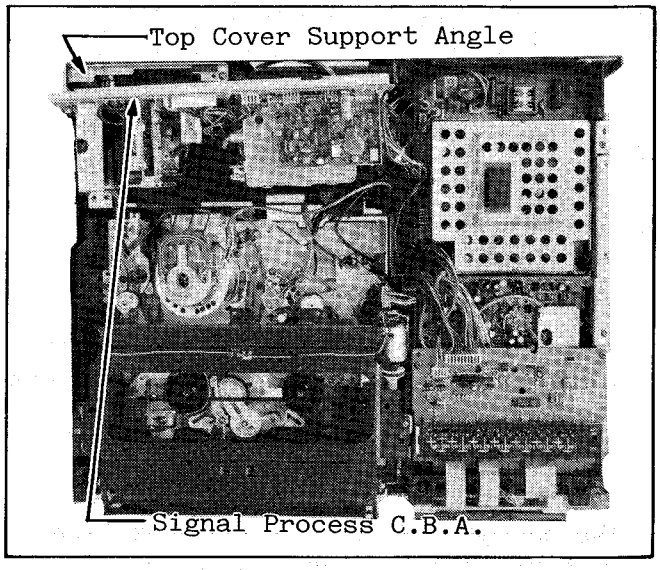



Fig. M8 Setting of Signal Process C.B.A.

Note :
Be careful lest the surrounding wires should be damaged.

## 2. PROCEDURE FOR CLEANING OF UPPER CYLINDER UNIT

1. Position the Video Head or FM Audio Head to permit access for cleaning and hold the upper cylinder to keep it from turning while cleaning.
2. Gently rub the Video Head or FM Audio Head in direction of tape travel with Head Cleaning Stick (VFK27) moistened with Freon TF.
3. Repeat for the other Video Head and FM Audio Head.

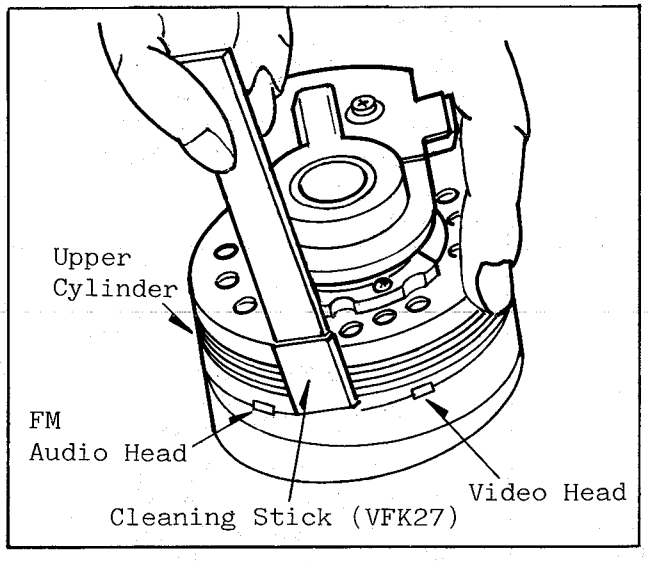



Fig. M9 Head Cleaning

Note :
1. Do not rub vertically.
2. Do not apply any pressure to head. If contaminant is not easily removed, continued gentle wiping will usually remove the substance.

## 3. ADJUSTMENT PROCEDURES

### 1. REPLACEMENT OF UPPER CYLINDER UNIT

Work with extreme care when removing or replacing the Upper Cylinder Unit.
Do not touch Video Heads and FM Audio Heads during servicing.

1. Remove the stator Angle Unit by removing 2 screws (A).

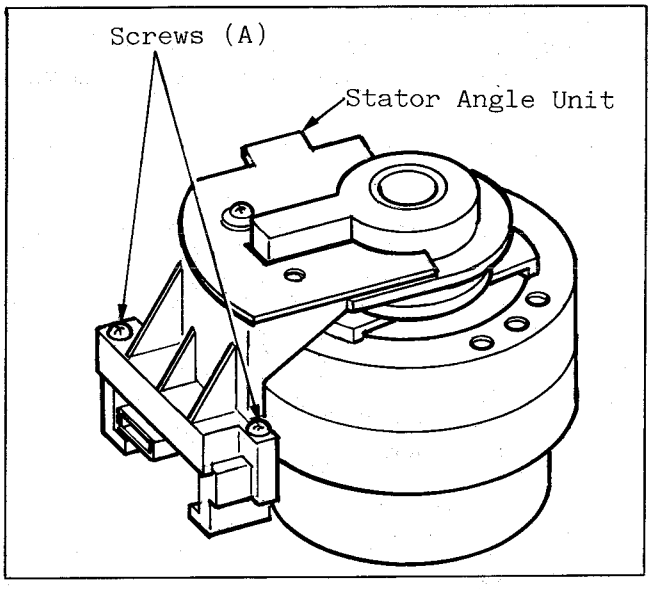
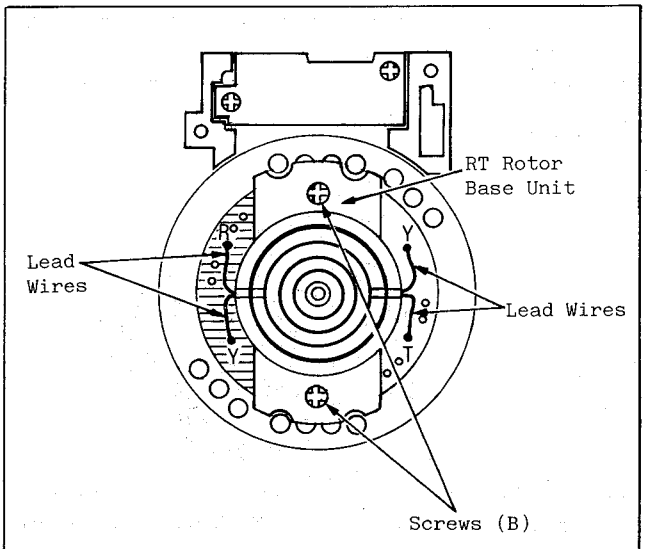



Fig. M10-1

2. Unsolder the 4 Lead wires which are color coded to matching marks (Y,R,T,Y) on the head relay board.
3. Remove the 2 screws(B) and gently lift the RT Rotor Base Unit from the Upper Cylinder Unit.




| Color of Lead Wires | mark on head relay board | Color of Lead Wires | mark on head relay board |
|---|---|---|---|
| RED | R | YELLOW | Y |
| YELLOW | Y | BROWN | T |

Fig. M10-2

4. Unsolder the 8 lead pins on the head relay board which are indicated by the arrows ⇌.
5. Remove the 2 screws (C) and gently lift the Upper Cylinder Unit from the shaft.

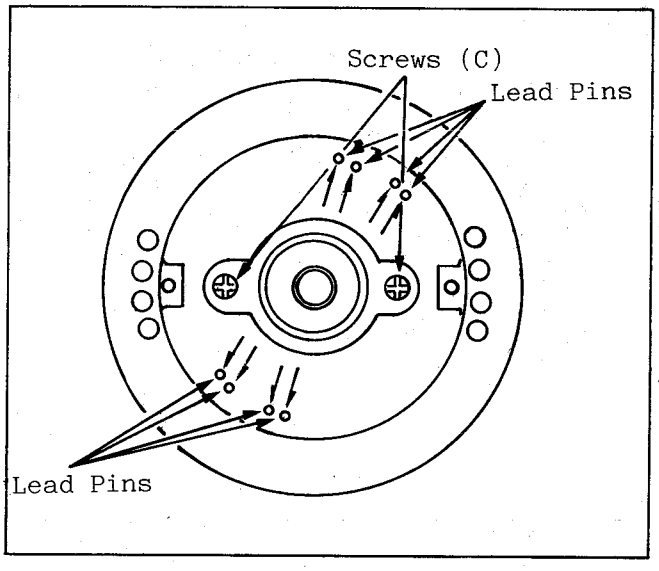



Fig. M10-3 Replacement of Upper Cylinder Unit

6. Before reinstalling a new unit, clean the D.D. Cylinder shaft and the surface that it engages with on the Upper Cylinder with a soft cloth dampened with Freon TF.

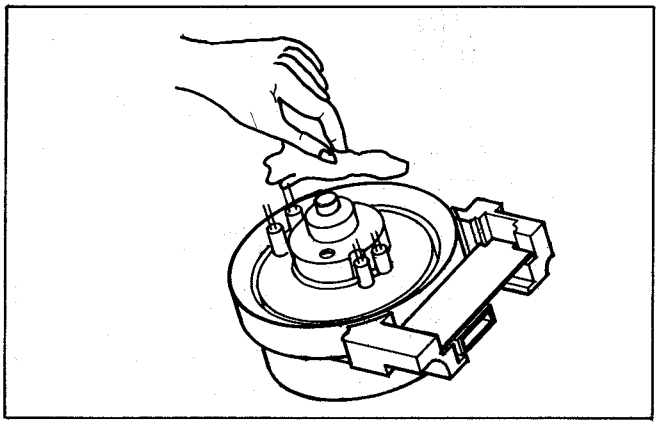


Fig. M10-4 Replacement of Upper Cylinder Unit

7. Install new Upper Cylinder Unit carefully so that the 8 lead pins are properly matched to the Head Relay Board.
   For details on the installation position, refer to Fig. M10-5.

Note :
Install the 8 lead pins with extreme care so as not to damage them.

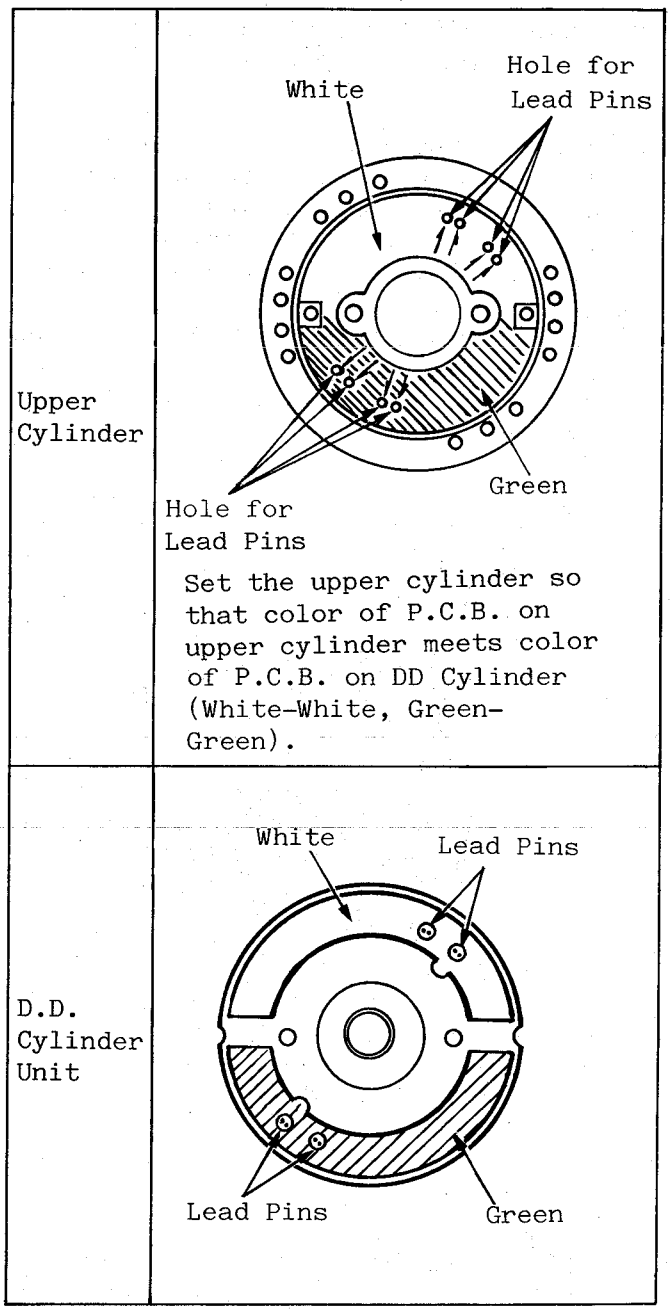



Fig. M10-5 Replacement of Upper Cylinder Unit

8. Tighten the 2 screws(C) and resolder the 8 lead pins to the head relay board.
9. Next reinstall the RT Rotor Base Unit by refastening the 2 screws(B).
10. Matching them to their proper marks. Resolder the 4 color coded wires to the head relay board (yellow wires to Y marks, red wire to R mark, brown wire to T mark) as shown in Fig. M10-2.

11. Install the stator Angle Unit with 2 screws(A) as shown Fig. M10-1 and adjust the position of the Stator Angle Unit.
12. Clean the Upper Cylinder with a deerskin swab saturated with Freon TF.

Note:
Upon completion of replacement, confirm performance. And if required, perform "TAPE INTERCHANGEABILITY ADJUSTMENT".

## 2. POSITION ADJUSTMENT OF STATOR ANGLE UNIT

1. Loosen 2 screws(A).
2. Adjust the position of the stator Angle Unit so that the hole of the stator Angle Unit is centered with RT Rotor Boss.

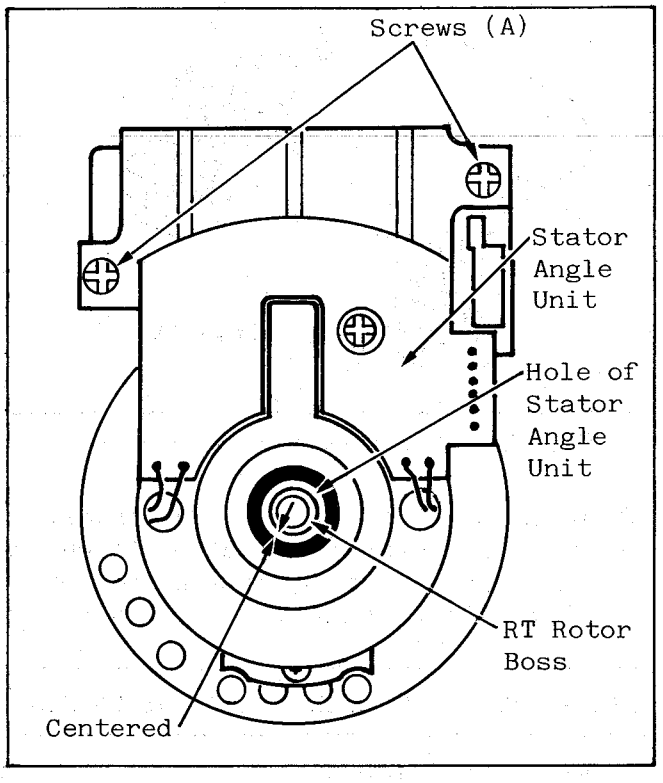



Fig. M11 Position Adjustment of Stator Angle Unit

## 3. REPLACEMENT OF D.D. CYLINDER UNIT

Work with extreme care when removing or replacing the D.D. Cylinder Unit.
Do not touch video heads during servicing.

1. Disconnect connector (P1503) from the Stator Angle Unit.
2. Disconnect 2 connectors (P1501 and P1502) from the D.D. Cylinder Unit.
3. Remove screw (A) and discharge angle unit.
4. Remove the D.D. Cylinder Unit by removing 3 screws (B).

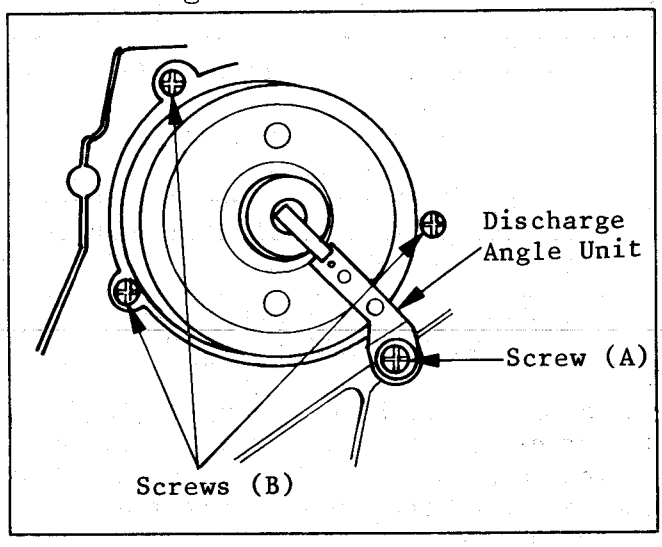



Fig. M12-1 Replacement of D.D. Cylinder Unit

Note :
Since there is very little clearance between D.D. Cylinder Unit and chassis, remove the D.D. Cylinder Unit gently and carefully.

5. Remove the Stator Angle Unit, RT Rotor Base Unit, Upper Cylinder Unit from the D.D. Cylinder and reinstall it on new one. To perform this step, refer to "REPLACEMENT OF UPPER CYLINDER UNIT" section.
6. Reinstall the new D.D. Cylinder Unit and connect P1501 and P1502. Reinstall connect P1503 and Discharge Angle Unit.

Note :
1. When reinstalling the new D.D. Cylinder Unit, fit the new D.D. Cylinder Unit to the chassis by turning it counterclockwise.

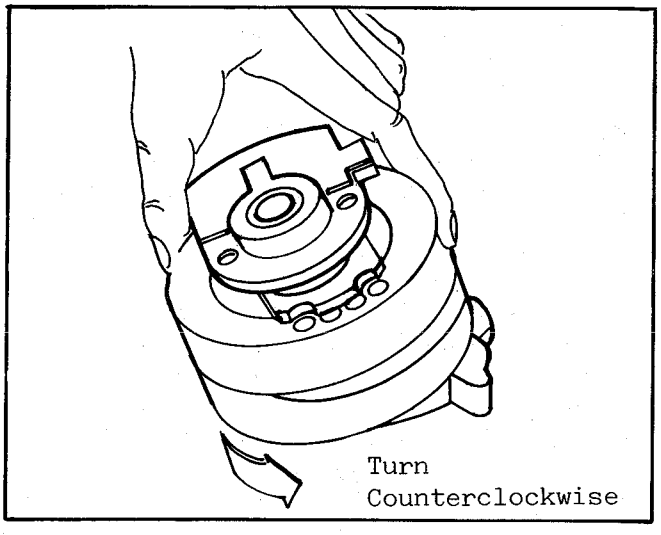



Fig. M12-2 Replacement of D.D. Cylinder Unit

2. Upon completion of replacement, confirm performance.
   If any further maintenance is required, perform "TAPE INTERCHANGEABILITY ADJUSTMENT".

## 4. CONFIRMATION OF DISCHARGE ANGLE UNIT INSTALLATION POSITION

Check to see if the Discharge Angle Unit is correctly set in a position as close to 1mm as possible to the upper side from the center of the cylinder shaft as shown in Fig. M13.

Note :

Never install the Discharge Angle Unit to any position to the lower side from the center of the Cylinder shaft, but always within a maximum of 1mm to the upper side of the center of this shaft.

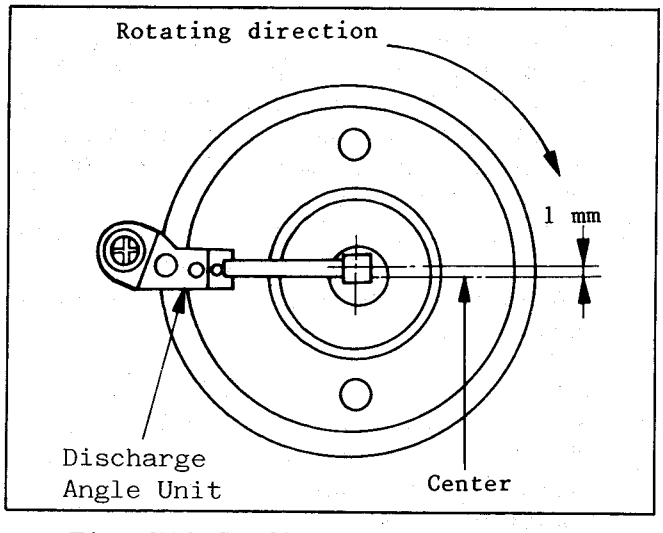



Fig. M13 Confirmation of Discharge Angle Unit Position

## 5. ADJUSTMENT OF V-STOPPERS

* Equipment Required:
  V-Stopper Adjustment
  Fixture .....(VFKS0029)

1. Remove the D.D. Cylinder Unit from chassis. (Stator Angle Unit does not need removal from the D.D. Cylinder Unit.) Refer to "REPLACEMENT OF D.D. CYLINDER UNIT" section.
2. Loosen 4 screws (A) and install the fixture.
   Push the V-stoppers snugly against the pins and tighten the 4 screws (A).

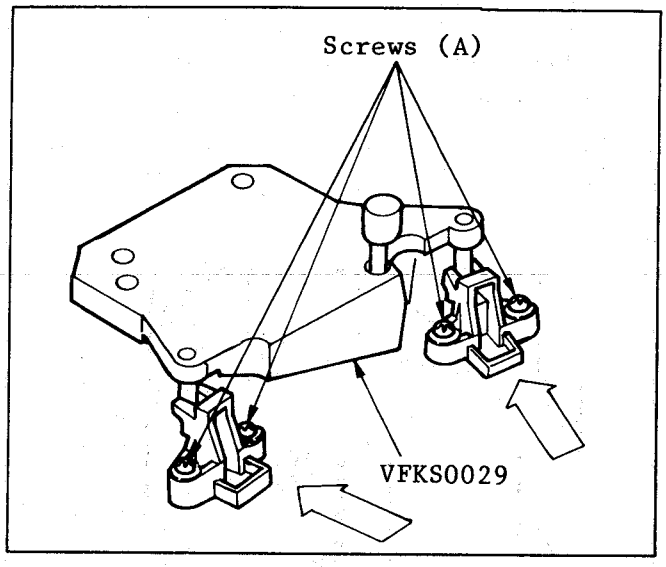



Fig. M14 Adjustment of V-Stoppers

3. Upon completion of the adjustment, simulate loading completion to ensure that posts smoothly fit the V-Stoppers. Then reinstall the D.D. Cylinder Unit.

## 6. POSITION ADJUSTMENT OF TENSION POST

* Equipment Required:
  Tension Post Adjustment Plate
  .....(VFKS0002)
  Fine Adjustment Screwdriver
  .....(VFKS0136)

1. Remove the Top Case and Front Panel.
2. Put the Cassette Holder in down position without a cassette tape, referring to the procedures in 2-3-1 on page 2-3.
3. Push the play button for loading.

4. As soon as loading is completed, disconnect the AC plug and remove the Cassette Up Unit.
5. Loosen the screw slightly so that the tension band bracket can be moved in accordance with the procedure in item 7, but does not move when the screw driver is removed.
6. Place the adjustment plate.
7. Insert the fine adjustment screwdriver into the hole and move the tension band bracket right or left so that the tension post just touches the fixture.
8. Remove the adjustment plate and tighten the screw.
9. Replace the adjustment plate. Confirm that the tension post just touches the fixture.
10. Remove the jumper.

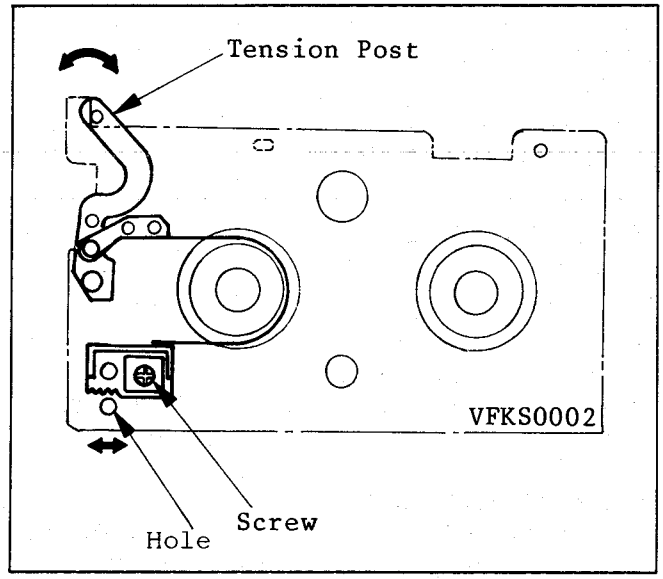



Fig. M15 Adj. of Tension Post

## 7. MEASUREMENT AND ADJUSTMENT OF BACK TENSION

A: Measurement Procedure

* Equipment Required:
  Back Tension Meter (Tentelometer, Model T2-H7-UM, Purchase Locally)
  VHS Cassette Tape (120 Minute Tape)

* Specification: 25 - 30g

1. Remove the Top Case.
2. Pull the erase head in the direction indicated by the arrow and hold it with adhesive tape.
3. Playback the cassette tape from its beginning and wait until tape running has stabilized. (for approx. 10 to 20 seconds)
4. Insert Tension Meter in tape path and confirm reading.
5. If the reading is out of specification, perform the adjustment procedure.

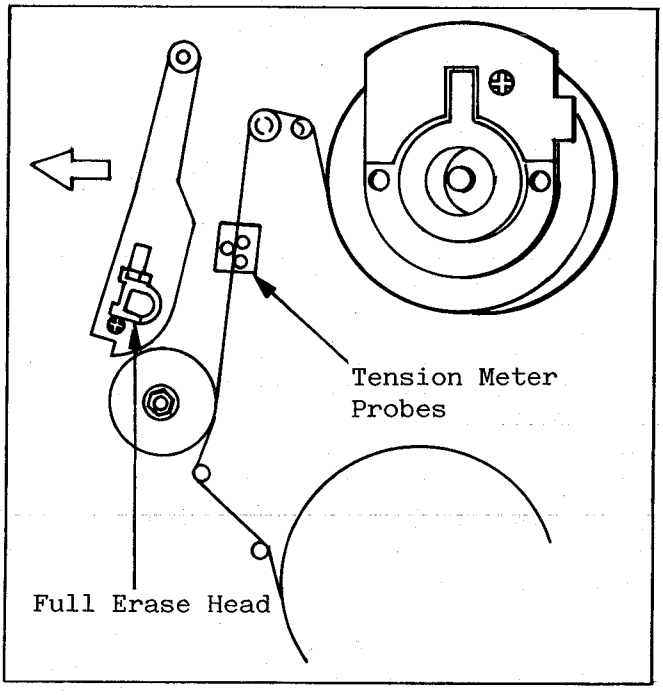



Fig. M16 Measurement of Back Tension

Note :
1. Make sure that the three probes of the meter are all in solid contact with tape, but out of contact with any other parts while measuring.
2. It is recommended that measurements be taken three times as tension meter is very sensitive.

B: Adjustment Procedure

* Equipment Required:
  Fine Adjustment Screwdriver...(VFK0136)

1. Loosen screw (A) and insert the fine adjustment screwdriver into the hole (B).
2. Move the adjustment plate either direction as indicated by the arrow to obtain the specified tension.
   Turn the driver clockwise to loosen tension, counterclockwise to tighten tension.

3. Tighten screw (A) and verify tension with the meter once again.
4. Reinstall the cabinet parts.

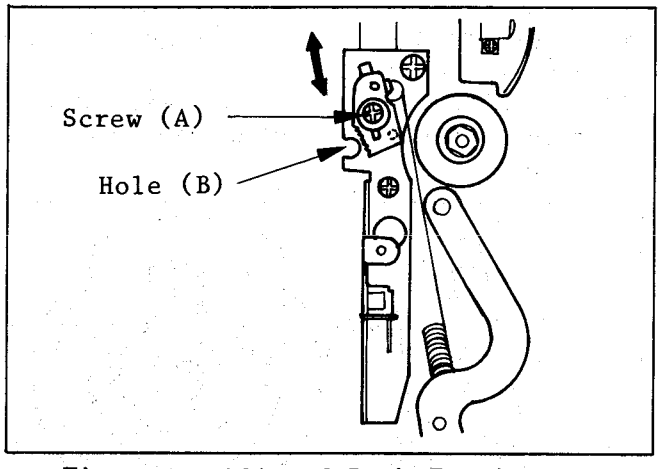



Fig. M17 Adj. of Back Tension

Note :
Upon completion of adjustment, remove the adhesive tape holding the erase head.

## 8. CONFIRMATION OF BRAKE TORQUE

A : Confirmation Procedure

* Equipment Required:
Dial Torque Gauge.....(VFK0133)
Adaptor for Gauge.....(VFK0134)

1. Remove the Top Case.
2. Put the Cassette Holder in Down position without a cassette tape, referring to the procedures in 2-3-1 on page 2-3.
3. Attach the adaptor to the torque gauge and place the deck in STOP mode.
4. Place the torque gauge on the reel table. The weight of gauge should not rest on the reel table.

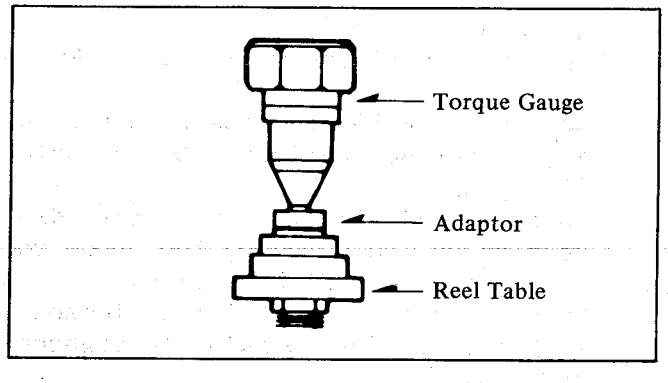
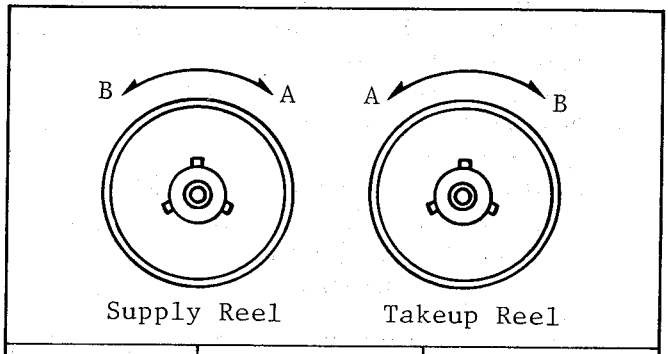



Fig. M18-1 Confirmation of Brake Torque

5. Turn torque gauge in either direction indicated in the Fig.M18-2 and read the gauge when the brake begins slipping.

Note:
If proper brake torque can not be obtained, clean the rotating surface of reel table with a soft cloth and recheck torque before replacing brakes.




| | A | B |
|---|---|---|
| Takeup | more than 450g.cm | 50 - 125g.cm |
| Supply | | |

Fig. M18-2 Confirmation of Brake Torque

## 9. CONFIRMATION OF TAKEUP TORQUE

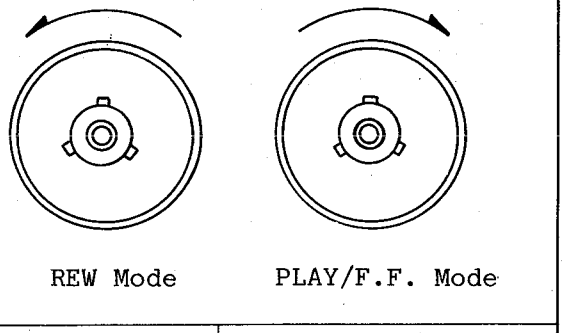
* Equipment Required:
Dial Torque Gauge.....(VFK0133)
Adaptor for Gauge.....(VFK0134)

* Specifications:
in PLAY mode .....100 - 180g.cm
in F.F. mode .....more than 400g.cm
in REW mode .....more than 400g.cm

1. Attach the adaptor to the torque gauge.
2. Remove the Top Case and Bottom plate.
3. Put the Cassette Holder in Down position without a cassette tape, referring to the procedures in 2-3-1 on page 2-3.
4. Place the torque gauge on the takeup reel table, push the Play button and read torque on the gauge.
Repeat above procedures in F.F. mode after pushing the F.F. button.

Note:
While measuring, the weight of the gauge should not rest on the reel table.

5. Set the torque gauge on the supply reel table, press the rewind button to check REW mode torque.
6. Remove the jumper.




| | |
|---|---|
| PLAY Mode | 100~180g.cm |
| F.F. Mode | more than 400g.cm |
| REW Mode | more than 400g.cm |

Fig. M19 Confirmation of Takeup Torque

## 10. POSITION ADJUSTMENT OF SAFETY TAB SWITCH

* Equipment Required:
  Cassette Holder Fixture .....(VFKS0004)

1. Remove the Top Case, Front Panel, and Cassette Up Unit.
2. Slightly loosen the screws (A) and (B).
3. Place the fixture in place over the reel tables.
4. Adjust the Safety Switch Angle either forward or backward until the Safety Tab Switch closes and Safety Tab Switch just turns ON. Tighten Screws (A) and (B).

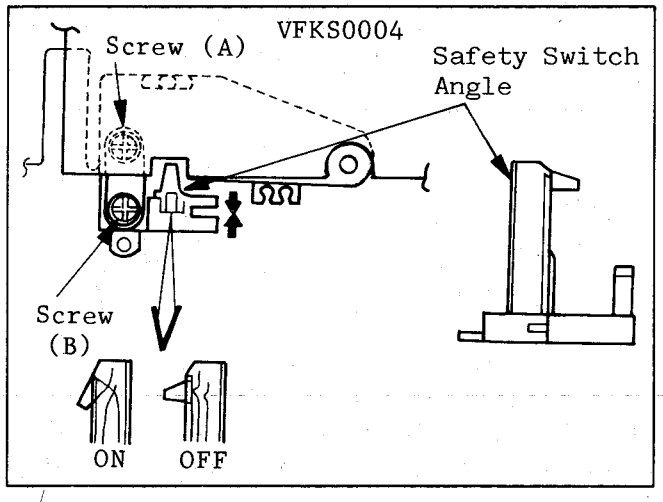



Fig. M20-1 Position Adjustment of Safety Tab Switch-(1)

Note:
1. Don't adjust with upward switch lever.
2. Confirm that the Safety Switch correctly turns ON and OFF using video cassette tapes with and without the Safety Tab.

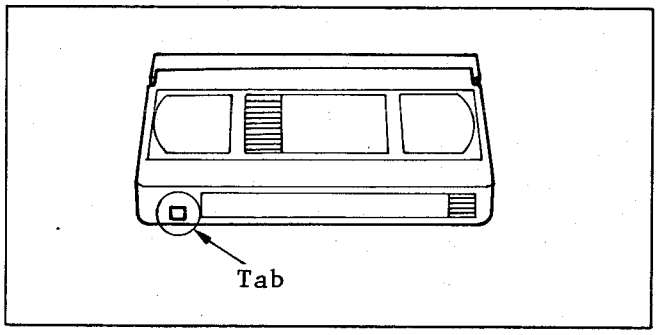



Fig. M20-2 Position Adjustment of Safety Tab Switch-(2)

## 11. HEIGHT ADJUSTMENT OF REEL TABLES

* Equipment Required:
  Post Adjustment Plate .....(VFKS0010)
  Reel Table Height Fixture ..(VFKS0009)

* Specification .....0 (+- 0.1)mm

1. Remove the Top Case, Front Panel, and Cassette Up Unit.
2. Place the post adjustment plate over the reels, and put the fixture on it. Set the fixture to zero "0" making sure that the scraper of fixture touches the cut-out portion of the plate.

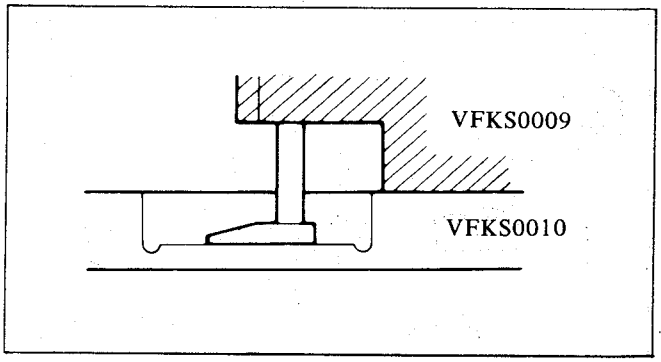



Fig. M21-1 Adj. of Reel Table Height

3. Then measure the top portion of reel table and confirm the difference against the result of the measurement taken in the above step.
   Do same for the other reel table.

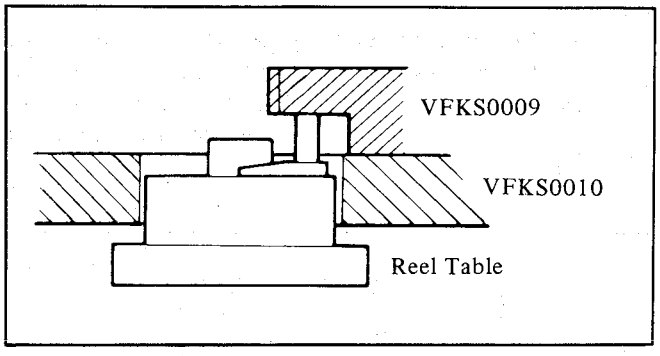



Fig. M21-2 Adj. of Reel Table Height

4. If the difference is more than 0.1mm (higher or lower), adjust the height of reel table to obtain the specified height.
5. For adjustment, change the poly slider washer located under the reel table. (The washer is available in sizes of varying thickness, t=0.13mm, 0.25mm and 0.5mm.)

## 12. HEIGHT ADJUSTMENT OF TAPE GUIDE POSTS

* Equipment Required:
  Lock Screw Wrench .....(VFKS0032)
  Post Adjustment Plate .....(VFKS0010)
  Reel Table Height Fixture ..(VFKS0009)
  Nut Driver .....(Purchase Locally)
  Post Adjustment Screwdriver
  .....(VFK0137)

1. Remove the Top Case, Front Panel and Cassette Up Unit. Place the Adjustment Plate.

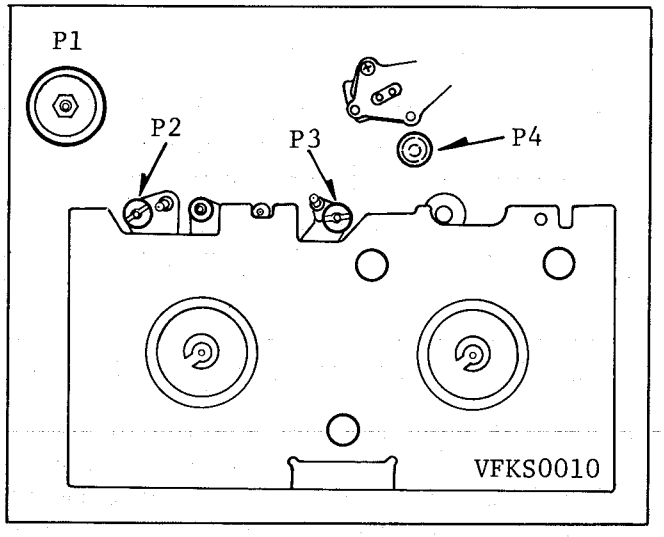



Fig. M22-1 Adj. of Tape Guide Post Height

2. First lower all posts so that the condition of height becomes as shown below.
   (Lower end of post and tape guide should be lower than scraper. Loosen lock screw located at lower portion of posts (P2 & P3) by Lock Screw Wrench, then turn the posts with post adjustment screwdriver.)

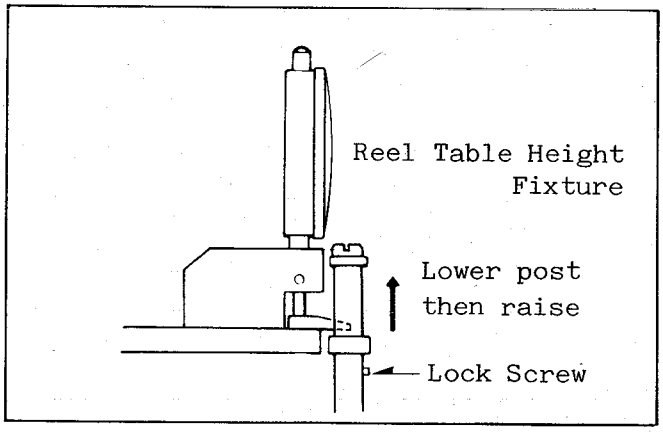



Fig. M22-2 Adj. of Tape Guide Post Height

3. Place the fixture on the Adjustment Plate and fit the scraper to the Adjustment Plate as shown in Fig. M22-2. (The scraper of the fixture should be fully lowered till it touches plate.)
4. Set the fixture to zero "0" and slowly raise the post until it just touches the scraper. When the scraper touches the post, it should fit as shown below in Fig. M22-3 (b).
   For adjustment of P1 and P4, use the nut driver.
   (The post cap on P4 can be removed by turning counterclockwise.)
   For adjustment of P2 and P3, use the post adjustment screwdriver.

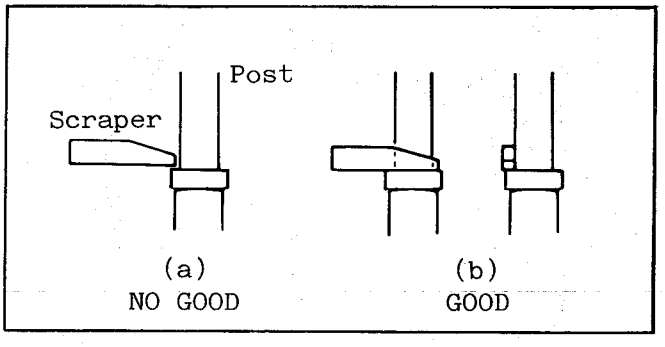



Fig. M22-3 Adj. of Tape Guide Post Height

Note:

Upon completion of adjustment, tighten lock screws on the P2 and P3 by Lock Screw Wrench and also install the post cap on post 4. When the post cap on P4 is reinstalled, the position of it should be as shown below when viewed from the direction indicated by the arrow.

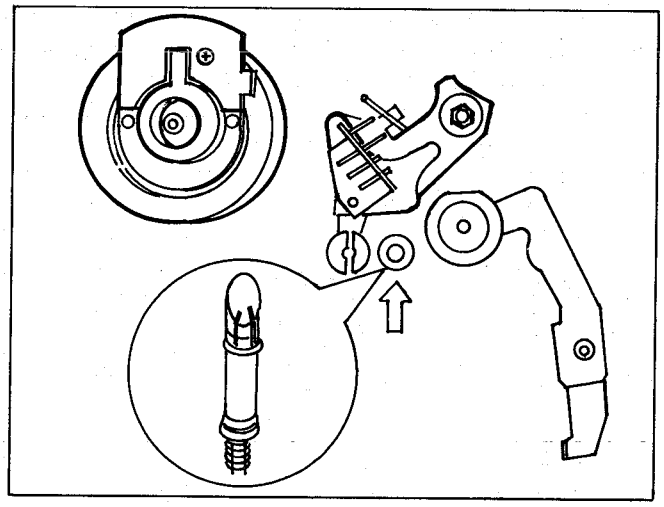


Fig. M22-4 Installation of Post Cap

## 13. HEIGHT ADJUSTMENT OF P5 ARM UNIT

Note:

1. The adjustment should be performed after the adjustment of P4 as the spec. is based on height of P4.
2. The adjustment should be performed in the loading completion mode.

* Equipment Required:

Post Adjustment Plate .....(VFKS0010)
Reel Table Height Fixture ..(VFKS0009)
Nut Driver (5.5mm) ..Purchase Locally
Specification : 0 (+- 0.05) mm

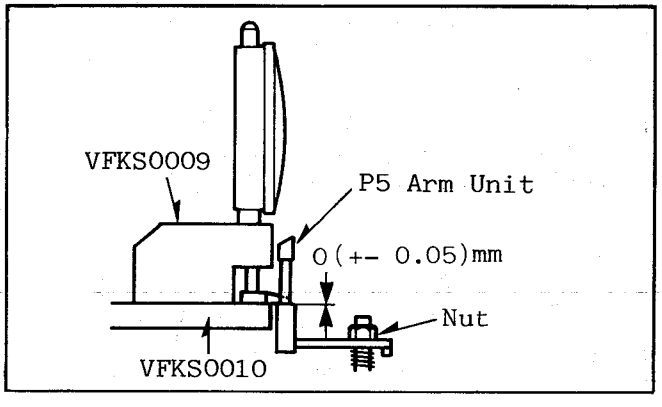



Fig. M23 Height Adjustment of P5 Arm Unit

1. Put the cassette Holder in down position without a cassette tape referring to the procedures in 2-3-1 on page 2-2.
2. Turn power switch ON, push the play button for loading.
   Then disconnect the AC plug.
3. First lower the P5 Arm Unit a little lower than the Post Adjustment Plate by turning the nut clockwise.
4. Place the post adjustment plate, put the reel table height fixture on the plate and set the height fixture to zero "0" with condition the foot touches on the height adjustment plate.
5. Slightly raise the post by turning the nut counterclockwise. Place the foot to the post as shown in Fig. M23.
6. Then slowly turn the nut till the fixture reads the specified height.
7. Reinstall the Cassette Up Unit and remove the jumper and plug in for unloading.

## 14. TAPE INTERCHANGEABILITY ADJUSTMENT (FINAL ADJUSTMENT)

Note:

To perform these adjustment/confirmation procedures, make sure that the tracking control is set in the detent (fixed) position.

* Equipment Required:

Alignment Tape .....(VFMS0001H6)
Post Adjustment
Screwdriver .....(VFK0137)
H-Position Adujstment
Screwdriver .....(VFKS0003)
Lock Screw Wrench .....(VFKS0032)
Nut Driver (8mm).....Purchase Locally
Oscilloscope

### 14-A. CONFIRMATION OF TAPE TRAVEL

1. Playback a cassette tape and confirm that the tape travels without curling at the edges of the tape.

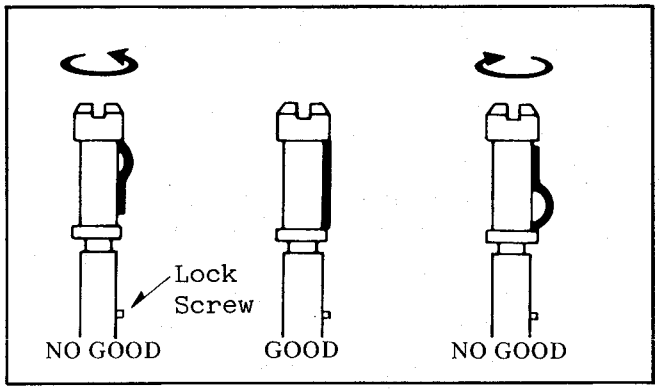



Fig. M24 Confirmation of Tape Travel

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver. (for P2 & P3)

Note:
Before turning P2 and P3, slightly loosen a lock screw by the Lock Screw Wrench.

## 14-B. CONFIRMATION OF A/C HEAD HEIGHT

This confirmation is required when the A/C Head was replaced and for preliminary height adjustment. For final adjustments, perform item 14-C, 14-D.

1. Looking at the lower edge of the control head with the tape running, ensure that the lower edge of the tape runs along the lower edge of the control head. If it doesn't, slightly turn the nut (A) in either direction to correct. Clockwise to lower the head and counterclockwise to raise it.

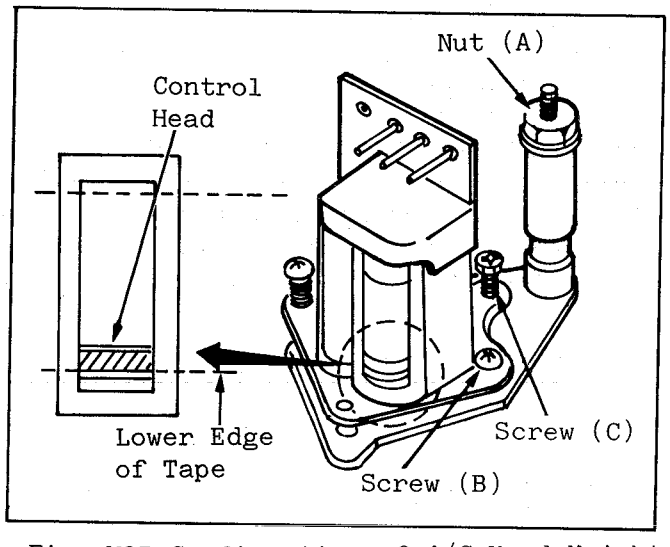



Fig. M25 Confirmation of A/C Head Height

## 14-C. CONFIRMATION OF TILT OF A/C HEAD

This procedure should be performed after the height adjustment of P4.

1. Playback the tape and confirm that the tape runs between lower and top limits of P4 post. Also confirm that the tape is running smoothly.
2. If adjustment is required, turn Screw (C) clockwise until curling is apparent at lower edge of P4. Then turn screw (C) counterclockwise until the curling is smoothed out.

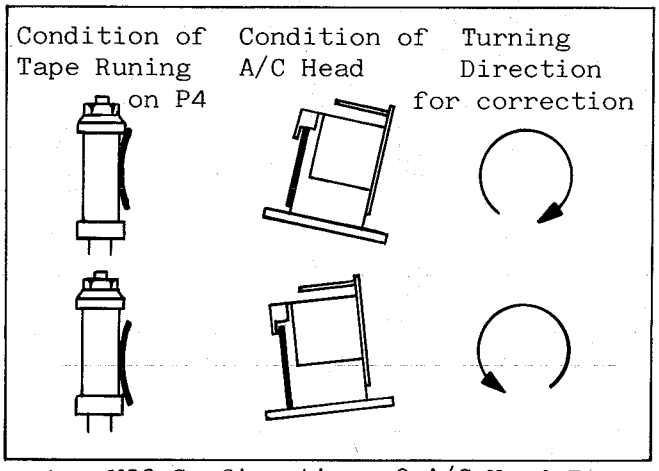



Fig. M26 Confirmation of A/C Head Tilt

## 14-D. HEIGHT AND AZIMUTH ADJUSTMENT OF A/C HEAD

1. Connect the oscilloscope CH1 to the Audio Output (Left) and CH2 to the Audio Output (Right) on the rear panel.
2. Playback the color bar portion (3kHz, Stereo) of the alignment tape (VFMS 0001H6).
3. Adjust the screw (B) so that the CH2 Audio Output (Right) is maximized.

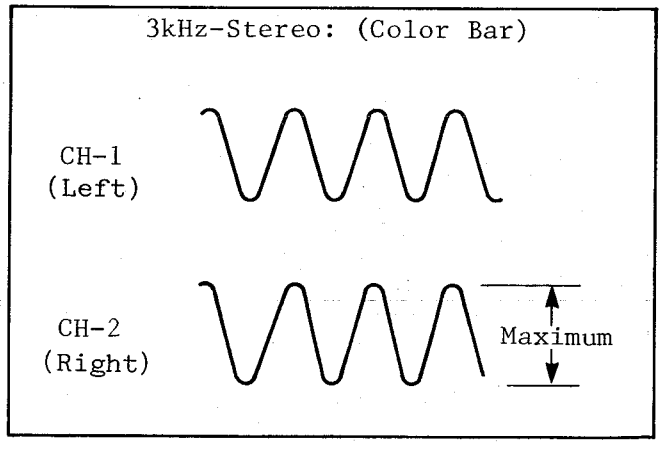



Fig. M27-1 Height and Azimuth Adjustment of A/C Head

4. Then, adjust the nut (A) so that the CH2 Audio Output (Right) is Maximized.

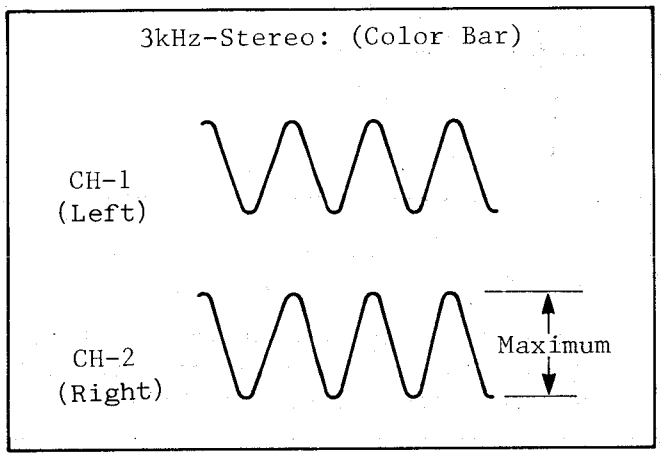



Fig. M27-2 Height and Azimuth Adjustment of A/C Head

5. Playback the monoscope portion (6KHz, Monaural) of the alignment tape (VFMS 0001H6).
6. Then, adjust the screw (B) so that the phases of both channels match as shown in Fig. M27-3.

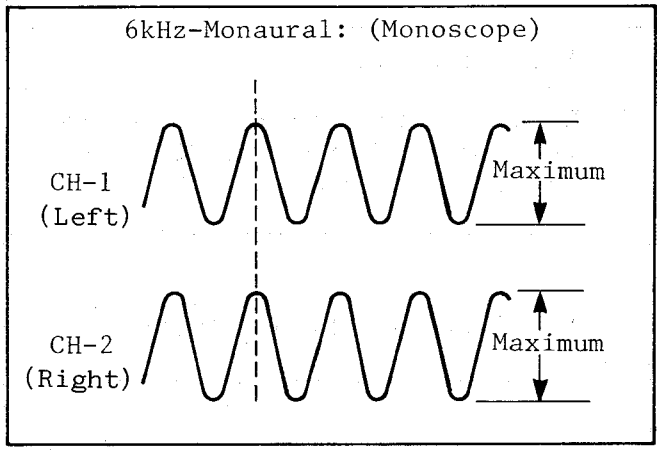



Fig. M27-3 Height and Azimuth Adjustment of A/C Head

Note:
During this adjustment, the audio output level should be maximum.

## 14-E. HORIZONTAL POSITION ADJUSTMENT OF A/C HEAD

1. Set the tracking control to the detent (fixed) point. Connect the oscilloscope CH1 to TP3005 on the Signal Process Section and CH2 to TP2003 on the Servo Section.

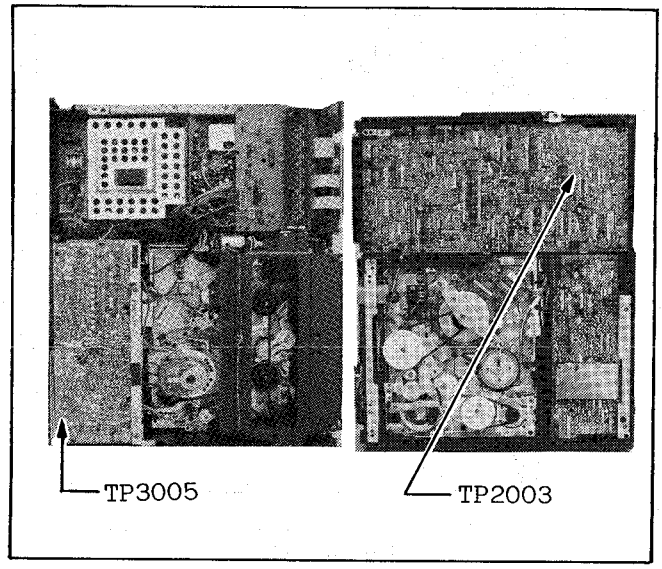



Fig. M28 Horizontal Position Adjustment of A/C Head-(1)

2. Playback the monoscope portion of the alignment tape (VFMS0001H6) and note the envelope which corresponds to the high period of the Head Switching Signal at TP2003 as shown in Fig. M29. Once note, use only this envelope for the subsequent Adjustments.
3. Slowly turn the Adjustment Nut so that the envelope is at maximum. Before finding the center of the maximum period of envelope, rotate the adjustment nut back and forth slightly to confirm the limits on either side of the maximum period. Next determine the center point.
4. Confirmation of the correct adjustment can be made by turning the tracking control to the right and the left to check the symmetry of the envelope. If the envelope changes symmetrically, the adjustment has been done correctly.

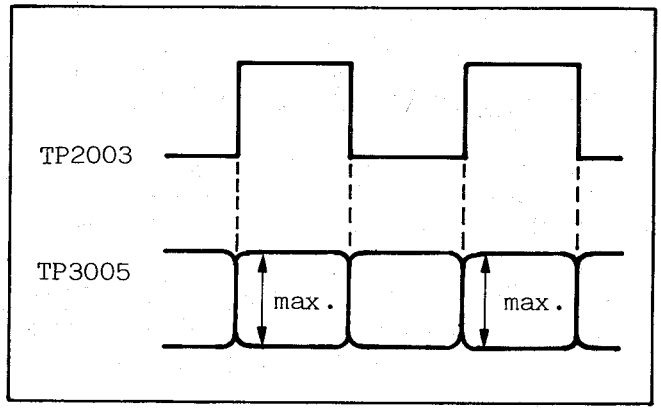



Fig. M29 Horizontal Position Adjustment of A/C Head-(2)

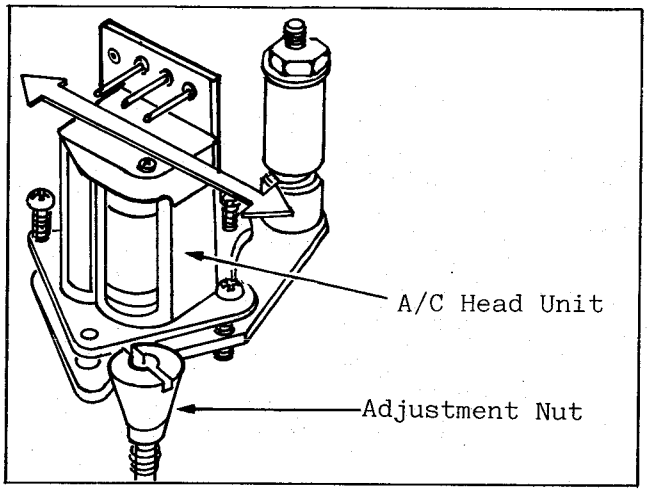



Fig. M30 Horizontal Position Adjustment of A/C Head-(3)

## 14-F. CONFIRMATION ADJUSTMENT OF ENVELOPE OUTPUT

1. Set the tracking control in the detent (fixed) position. Connect the oscilloscope to the TP3005 on Signal Process Section. Use TP3006 as a trigger.
2. Playback the monoscope portion of the alignment tape (VFMS0001H6) and adjust the height of posts P2 and P3 watching the scope display so that the envelope becomes as flat as possible.
   (V1/V-max≧0.7, V2/V-max≧0.8)
   If adjustment is required, turn top of post with post adjustment screwdriver. For adjustment of P2 & P3, refer to step 2 of item 14-A.

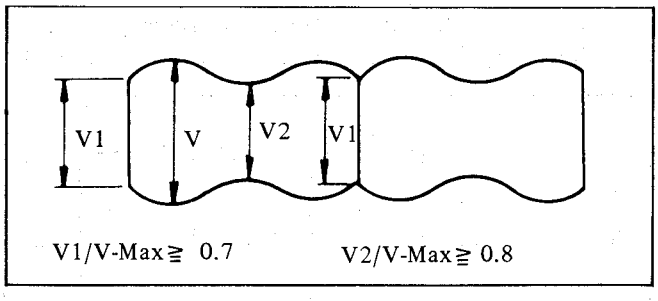



Fig. M31-1 Spec. of Envelope Figure

3. When the scope display is as follows, adjust the height of P2 so that the waveform looks like Fig. M31-4.

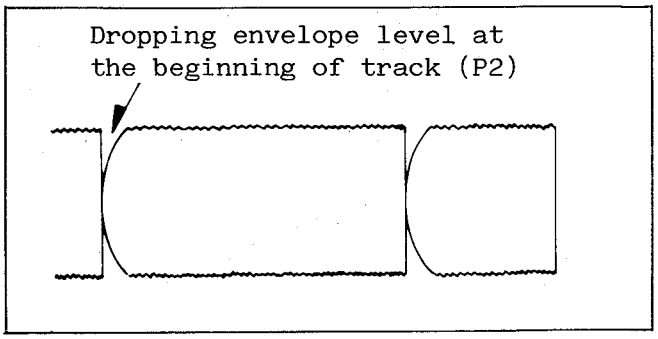



Fig. M31-2 Envelope Figure

4. When the scope display is as follows, adjust the height of P3 so that the waveform looks like Fig. M31-4.

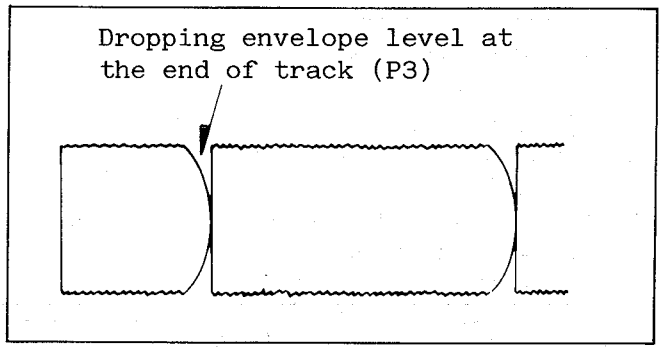



Fig. M31-3 Envelope Figure

5. The scope display should appear as shown below when P2 and P3 are adjusted correctly.

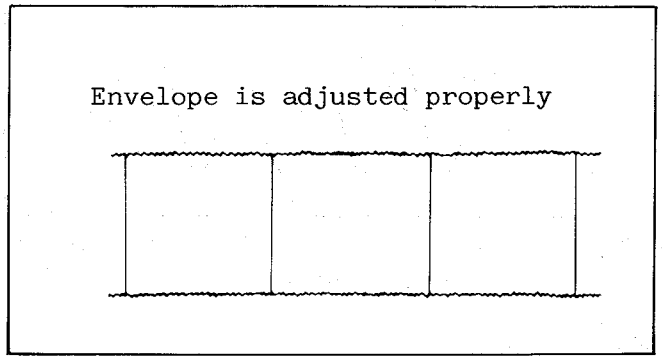



Fig. M31-4 Envelope Figure

Note:
Upon completion of adjustment of P2 and P3, confirm the Horizontal Position by turning the tracking control clockwise or counterclockwise. And if required, perform "Horizontal Position Adjustment of A/C Head".

## 15. ADJUSTMENT OF FG HEAD GAP

*Equipment Required:
Fine Adjustment Screwdriver...VFK0136

*Specification: 0.16 (+- 0.02) mm

1. Remove 2 screws (A) on the thrust Holder, then remove the Capstan Pulley Unit, 5 screws (B) and Capstan Stator Unit.

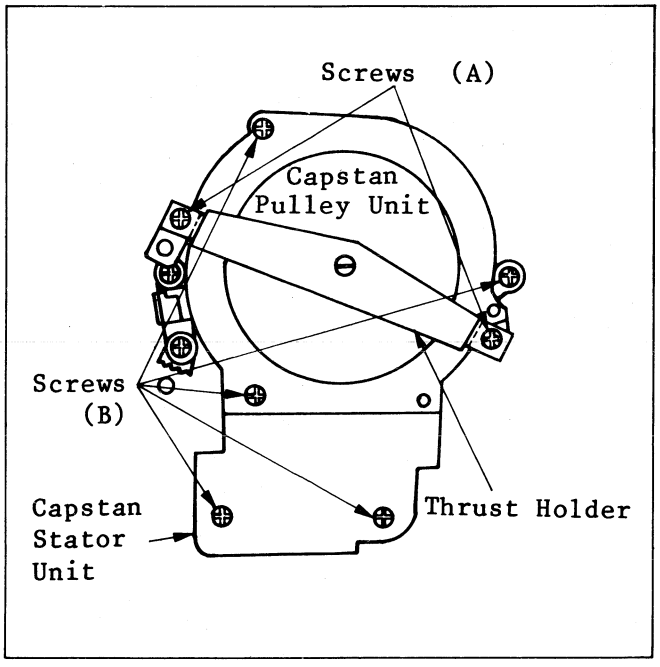



Fig. M32-1 Adjustment of F.G. Head Gap

2. Slightly loosen the 2 screws (C) and set the fine adjustment screwdriver into the hole (D).
Turn screwdriver clockwise until the FG Head touches the rotor and just slightly turn it counterclockwise so that the gap becomes as specified.

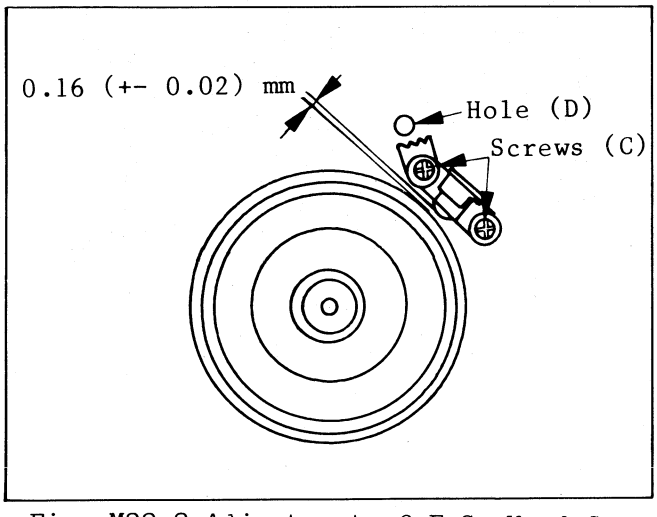



Fig. M32-2 Adjustment of F.G. Head Gap

Note:
1. Do not touch the outside circumference surface of the rotor with any tool, and keep any magnetizable material away from the rotor magnet.
2. When reinstalling the Capstan Stator Unit, the circumference of the hole in the Capstan Stator Unit must be Centered with the circumference of the Rotor Boss.

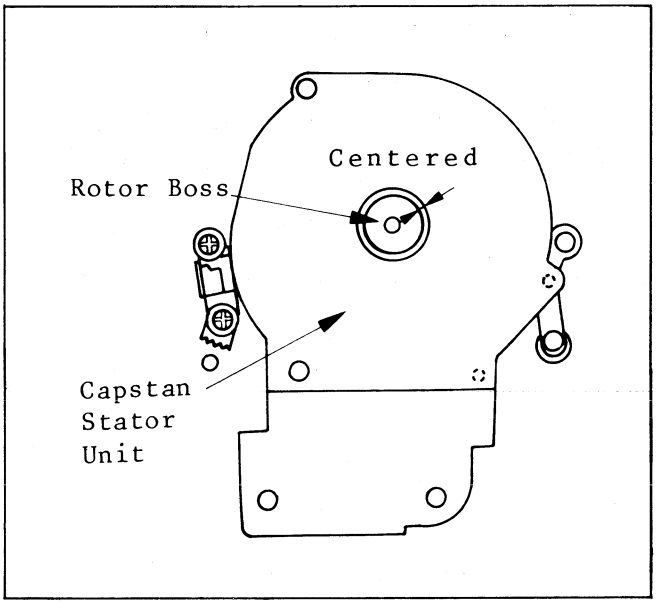



Fig. M32-3 Adjustment of F.G. Head Gap

## 16. CONFIRMATION/ADJUSTMENT OF THRUST GAP

* Equipment Required:
Reel Table Height Fixture...(VFKS0009)
* Specification: 0.05 - 0.09mm

1. Place the Unit upside down and place the height fixture on the thrust Holder. Set the fixture to zero "0".
2. Next, push the capstan shaft by your finger, and confirm the thrust gap.
3. If the gap is out of specification, then adjust the thrust screw by turning it clockwise or counterclockwise.

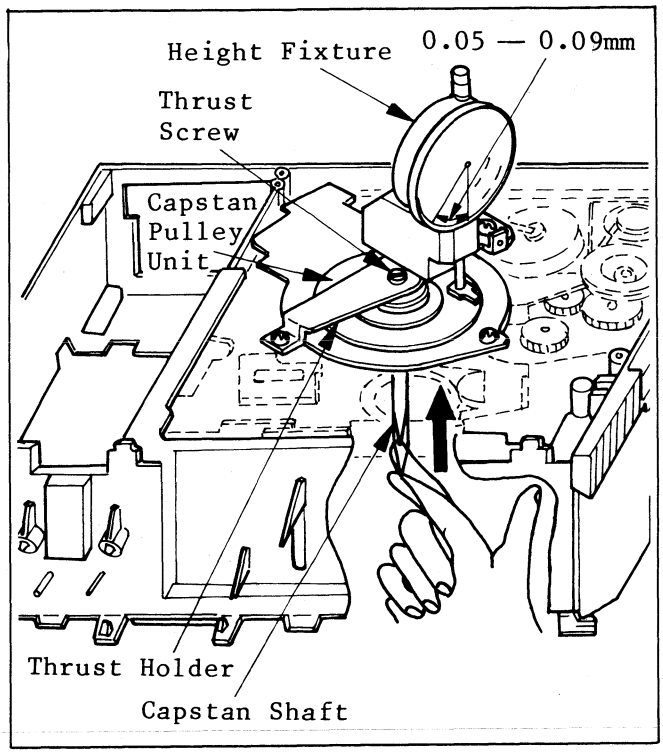



Fig. M33-1 Confirmation/Adjustment of Thrust Gap

Note:

Upon completion of above procedure, adjust the capstsn seal so that this seal is out of contact with the pressure roller and capstan holder. The specification of clearance is approx. 0.5 (+- 0.2)mm.

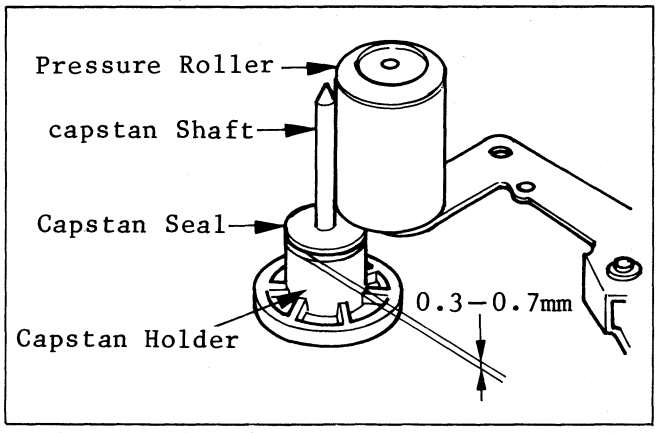



Fig. M33-2 Adjustment of Capstan Seal

## 17. ADJUSTMENT OF CAM GEAR AND MODE SELECT SWITCH

General Condition:

The mechanism of this model is mostly engaged to the electrical circuit, System Control Circuit, through the mode select switch. Therefore the relation between the mode select switch and the cam gear determines all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on. If the adjustment of this item is performed improperly, the deck will be unloaded or automatically stopped. It will also result in damage to mechanical and electrical parts.

Note:

Step 7 of this procedure describes the necessary adjustment if the mode select switch is replaced.

Adjustment Procedures:

This procedure starts with the condition that the Cassette Lock Unit, Kick Base Unit, Sector Gear, Cam Gear and Driving Gear have been removed.

1. Turn loading gear clockwise until post 2 and 3 are fully unloaded. The small projection on the loading gear will be pointing up in the unloaded condition.

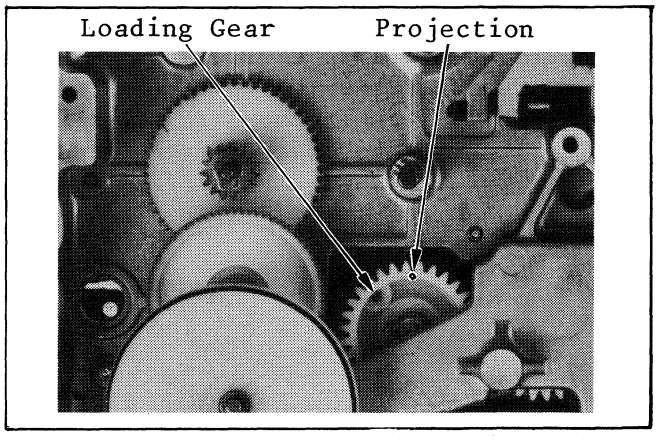



Fig. M34-1 Adj. Procedure

2. Install the driving gear so that the hole on the driving gear aligns with the projection on the loading gear. Ensure that the loading gear is still in the fully unloaded condition. Install the C-Ring to mount driving gear.

3. Slowly slide the main rod so that the hole (B) of the main rod meets the hole (C) of chassis. This will simulate stop mode (unloading completion) of main rod and mode select switch.

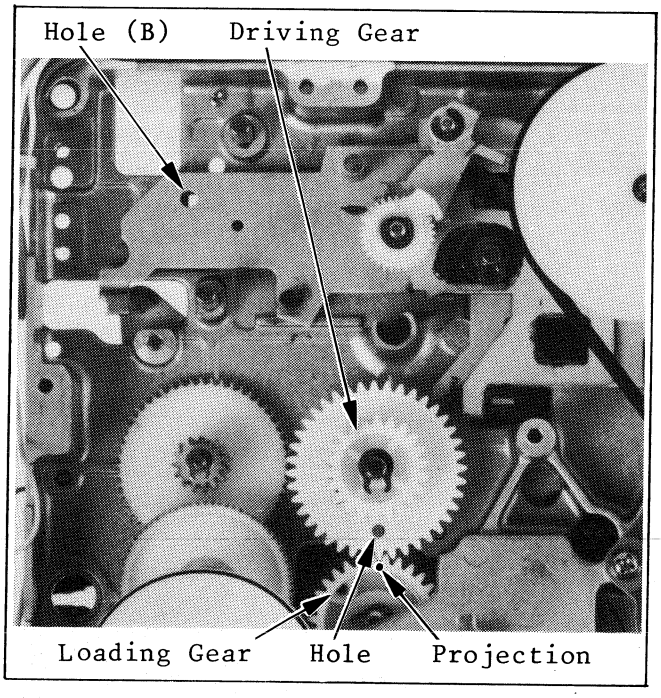



Fig. M34-2 Adj. Procedure

4. Insert the cam gear with the simple slot side showing so that the hole (A) on the gear meets the hole (B) on the main rod and hole(C) on the chassis. To facilitate matcing the three holes, use the small hex wrench or a metal pin. Then install the C-Ring to mount cam gear.

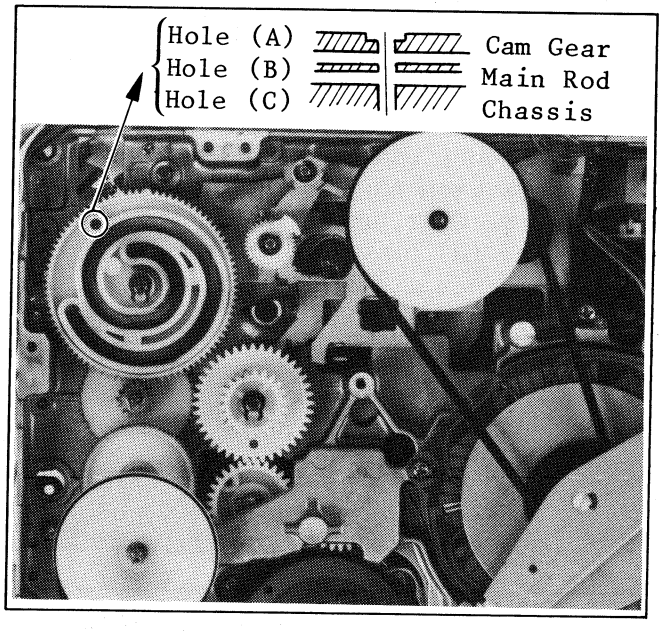



Fig. M34-3 Adj. Procedure

5. Install the sector gear so that the pin on the sector gear meets the inner slot of the cam gear as shown in Fig. M34-4. Also install C-Ring in order to mount sector gear.

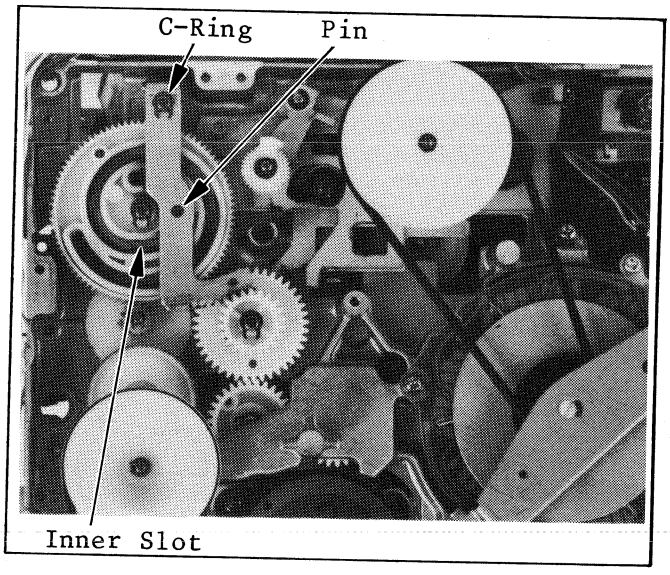



Fig. M34-4 Adj. Procedure

6. Completed adjustments should appear as illustrated below.

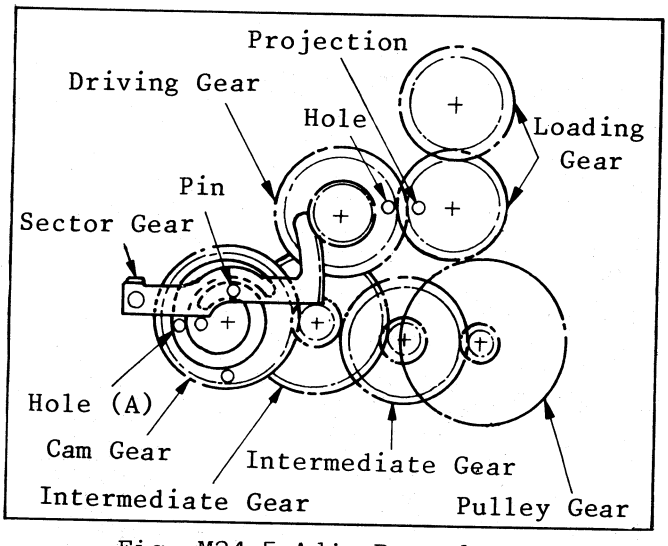



Fig. M34-5 Adj. Procedure

7. (Adjustment of Mode Select Switch) Keep the main rod in the unloading completion condition so that the hole (A) cam gear, hole (B) of main rod and the hole (C) of chassis are aligned. Upon completion, ensure that the movement of the deck is normal. Place the Mode Select Switch so that the movable projection(A) on Mode Select Switch fits around the tab on the main rod, enclosing it.

Slowly slide the Mode Select Switch sideways until the V-notches in movable Projection and V-notch on the Mode Select Switch are aligned. Tighten two screws (C) to secure alignment.

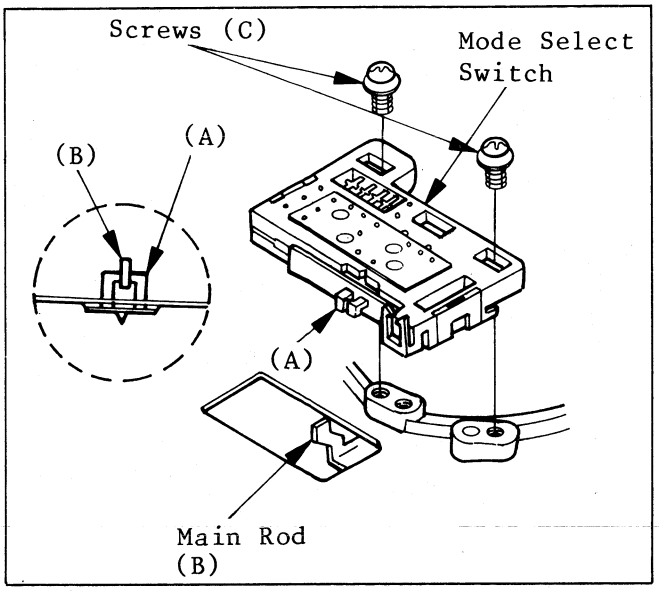



Fig. M34-6 Adj. of Mode Select Switch

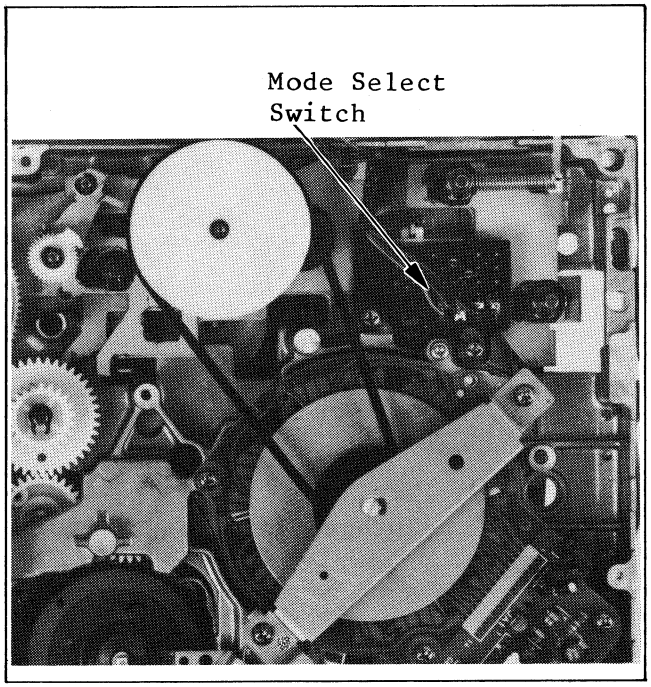



Fig. M34-7 Adj. of Mode Select Switch

8. Turn the Pulley gear in both directions to confirm smooth movement of this mechanism.
9. Install the Cassette Lock Unit and Kick Base Unit.

## 18. ADJUSTMENT OF CASSETTE UP GEARS

1. Remove the Cassette Up Unit according to removal procedure of Cassette Up Unit.
2. Set Cassette Up Unit in full cassette Up condition.

Full Cassette Up Condition :

(a). Turn the Cassette Loading Motor by hand to the Cassette Up Condition.

(b). Then remove the worm wheel stopper. Confirm that the wiper gear arm Unit (R) is on the full left side of its arc and cassette holder is in full up condition as shown in Fig. M35.

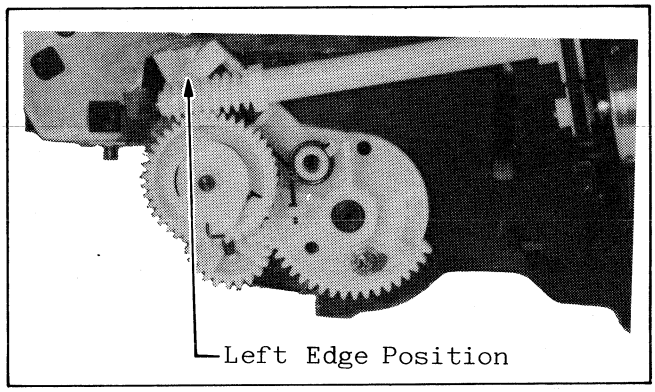



Fig. M35 Cassette Up Condition

Note:
All the follwing procedures for adjustment and part replacement should be performed with Cassette Up Unit in full Cassette Up Condition.

### 18-A. RIGHT SIDE GEARS

This procedure starts with the condition that the switch Angle Unit, worm wheel unit, wiper Gear arm Unit (R) and Main Shaft Gear (R) have been removed.

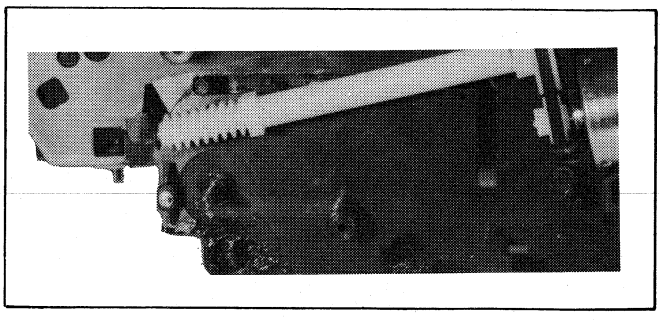


Fig. M36-1 Adjustment of Cassette Up Gears-(1)

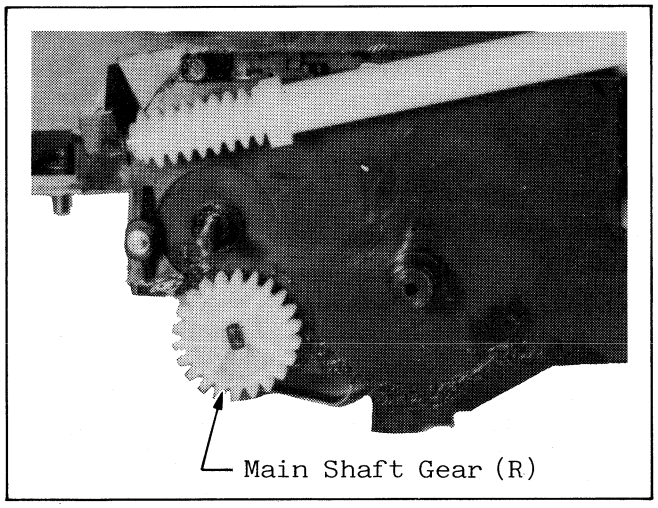



Fig. M36-2 Adjustment of Cassette Up Gears-(2)

2. Install the wiper gear arm (R) unit so that the projection (A) on the wiper gear arm (R) unit and the Projection (B) on the Main shaft Gear (R) are aligned. Pin of Cassette Holder-R should fit into the slot of wiper gear arm (R).

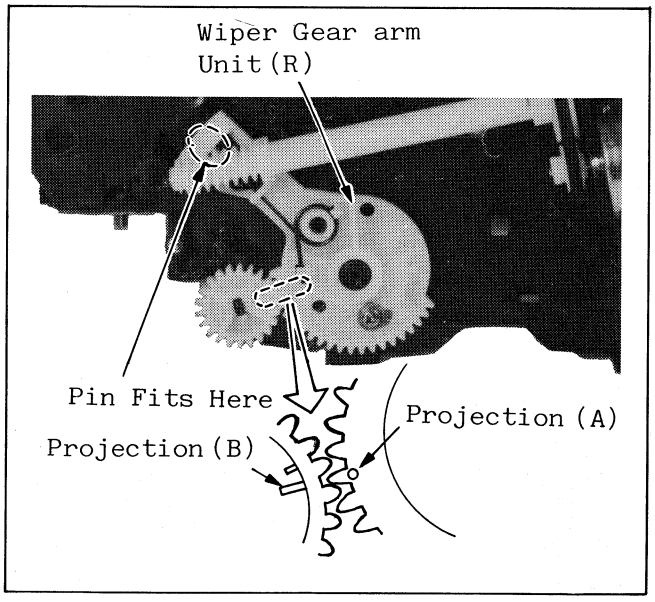



Fig. M36-3 Adjustment of Cassette Up Gears-(3)

3. Install the worm wheel unit so that the tooth (E) beside the projection (C) on the worm wheel unit and the valley (F) on the Main Shaft Gear opposite the shorter projection (D) on the Main shaft Gear should be aligned as shown in Fig. M36-4.

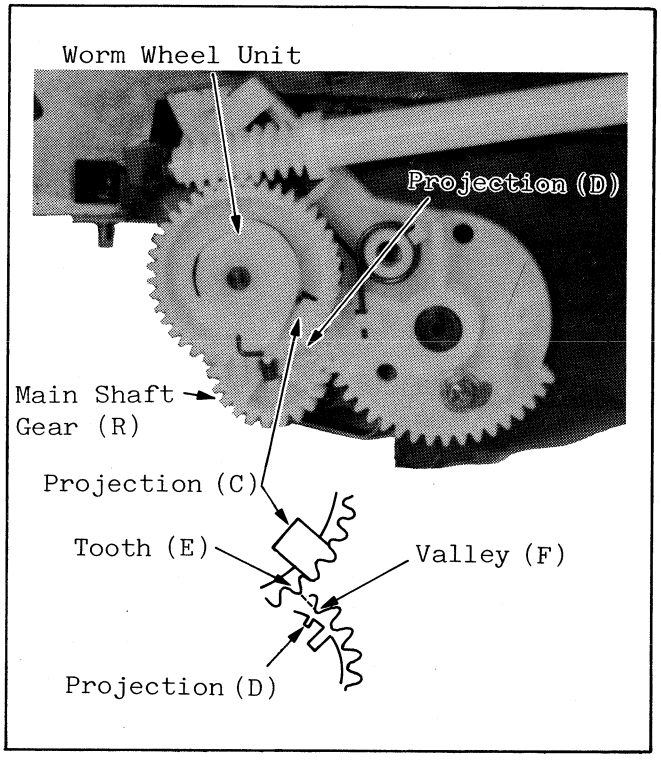



Fig. M36-4 Adjustment of Cassette Up Gears-(4)

4. Install worm wheel stopper unit and support angle with 3 screws (A) as shown in Fig. M36-5.

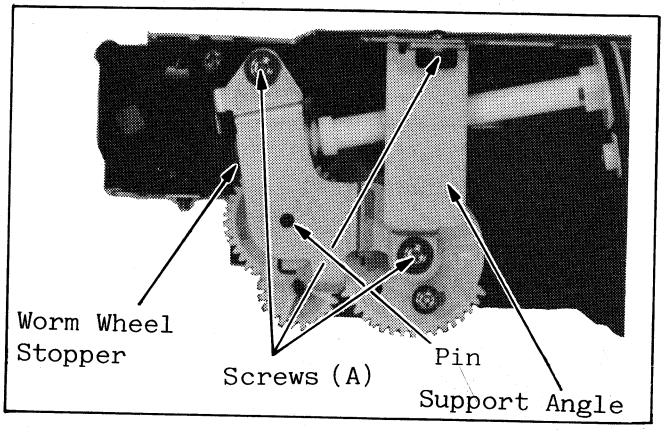



Fig. M36-5 Adjustment of Cassette Up Gears-(5)

5. Install the Switch Angle Unit with screw and 3 Locking tabs as shown in Fig. M36-6.

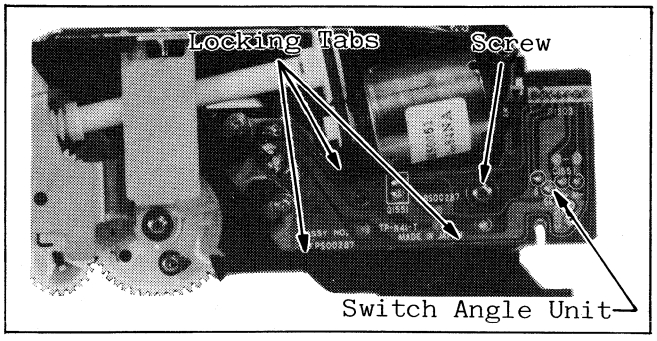



Fig. M36-6 Adjustment of Cassette Up Gears-(6)

## 18-B. LEFT SIDE GEARS

This procedure starts with the condition that the Cassette Compartment Opener Lever, wiper Gear (L) and Main Shaft (L) Unit have been removed.

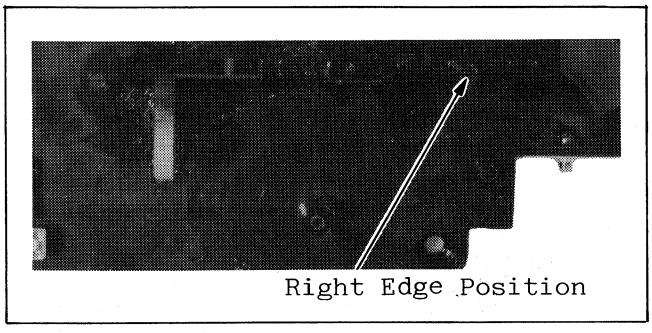



Fig. M36-7 Adjustment of Cassette Up Gears-(7)

1. Install the Main shaft Gear (L) Unit.

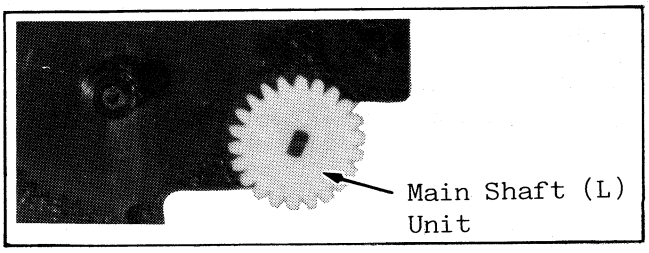



Fig. M36-8 Adjustment of Cassette Up Gears-(8)

2. Install the wiper Gear (L) unit so that the projection (E) on the wiper Gear (L) unit meets the projection (F) on the Main Shaft Gear (L) Unit. At that time, Pin of Cassette holder-L should fit into the slot of wiper Gear (L).
Then install the screw (B).

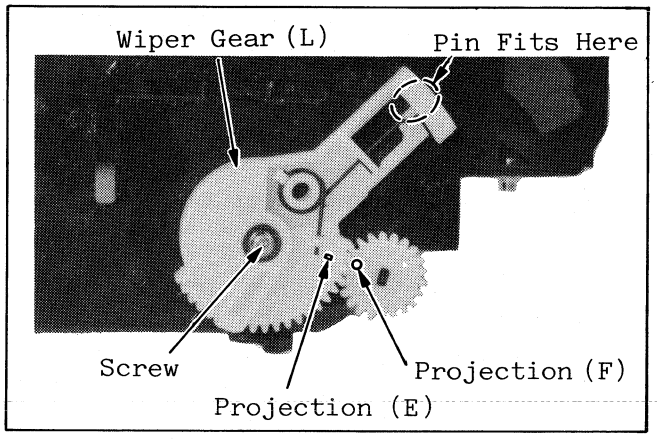



Fig. M36-9 Adjustment of Cassette Up Gears-(9)

3. Install the cassette compartment opener Lever as shown in Fig. M36-10. Ensure a portion of opener lever (G) slides into the opening beside Cassette door. Snap Cassette Compartment opener lever into place over its pin. Pull down on (H) to ensure Cassette door opens.

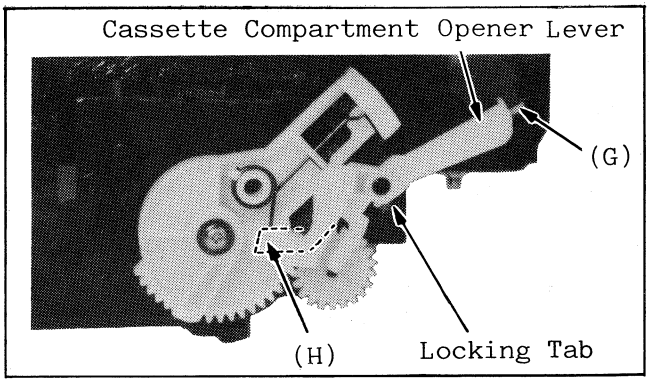



Fig. M36-10 Adjustment of Cassette Up Gears-(10)

## 19. ADJUSTMENT OF CASSETTE UP/DOWN SWITCH

* Equipment Required :
  Fine Adjustment Screwdriver ..VFKS0136

1. Confirm that the Cassette Up Unit is in the full cassette up condition and then remove the Cassette Up Unit referring to removal procedure of Cassette Up Unit.

2. Confirm that the projection (F) on the Wiper Arm Gear (R) Unit meets the apex of triangle of Cassette In Switch as shown in Fig. M36-11.

3. Slightly loosen the Screw (A) and insert the adjustment screwdriver into the hole (B).

4. Turn the adjustment screwdriver until projection (G) on the wiper Arm Gear (R) Unit meets the triangle of Cassette Up/Down Switch as shown in Fig. M36-11. Then Confirm the Cassette Up/Down Switch turns ON and tighten screw (A).

5. Connect the connector P1551 on the connection C.B.A. Insert the cassette tape, then confirm cassette up and cassette down movement.

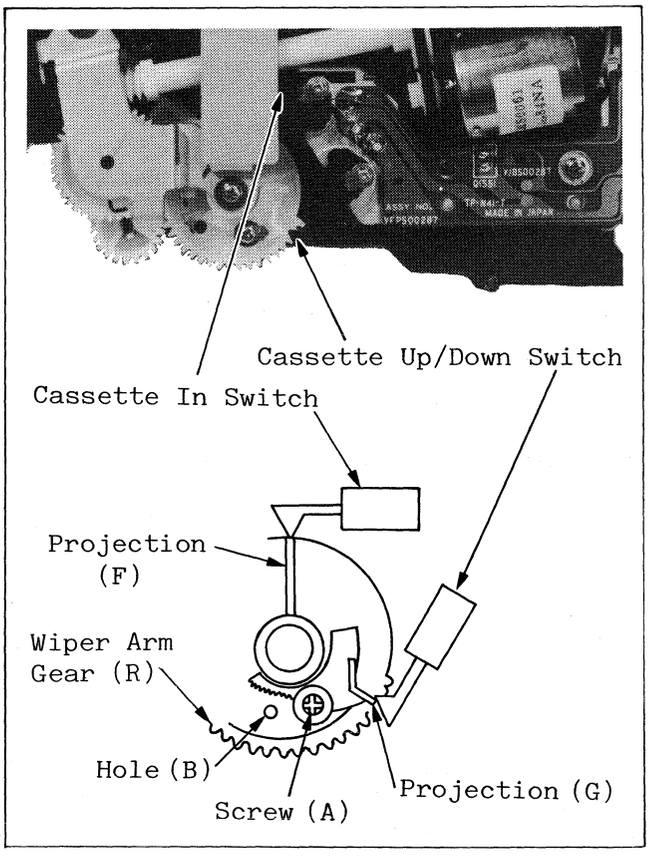
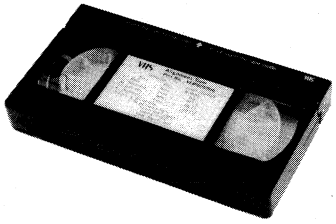


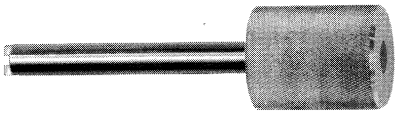

Fig. M36-11 Adjustment of Cassette Up Gears

# Servicing Fixtures & Tools

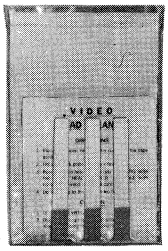
**VFMS0001H6** **VHF Alignment Tape**



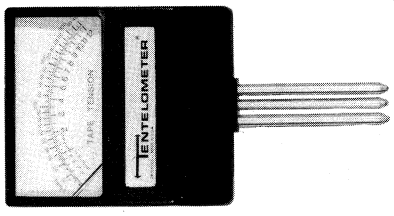
**VFK0137** **Post Adjustment Screwdriver**



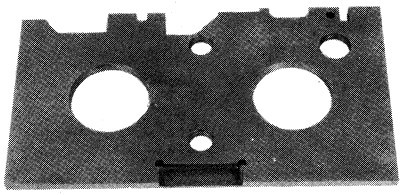
**VFK27** **Head Cleaning Stick**



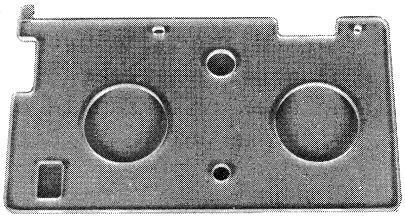

**Back Tension Meter**
**(Tentelometer, Made in U.S.A.)**



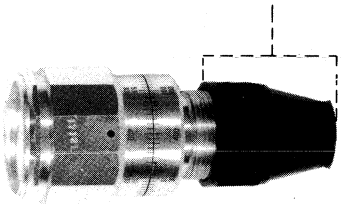

**VFKS0010** **Post Adjustment Plate**



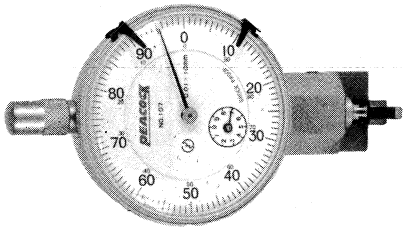
**VFKS0002** **Tension Post Adj. Plate**



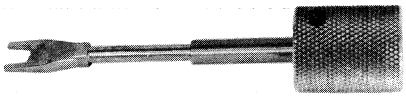
**VFK0133** **Dial Torque Gauge**
**VFK0180** **(Plastic Clamper Only)**



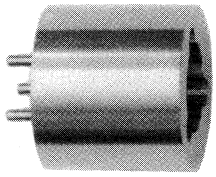
**VFKS0009** **Reel Table Height Fixture**



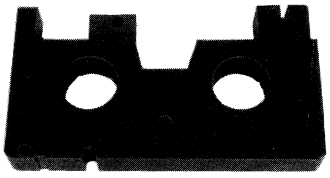

**VFKS0003** **H-Position Adj. Fixture**



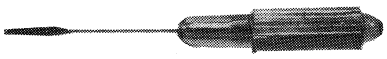
**VFK0134** **Adaptor for VFK0133**



**VFKS0004** **Cassette Holder Fixture**

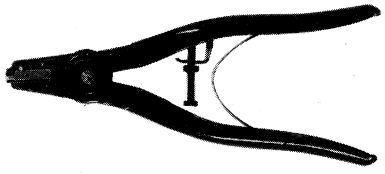


VFKS0031 V-Hold Adj. Tool

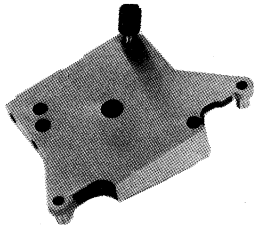


VFKS0032 Lock Screw Wrench

**VFK0144** **Retaining Ring Remover (3mmϕ)**
**VFK0145** **Retaining Ring Remover (4mmϕ)**

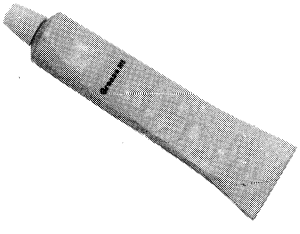


**VFKS0029** **V-Stopper Adj. Fixture**



**VFK0136** **Fine Adjustment Screwdriver (3mmϕ)**

**MOR265** **Molytone Grease**



# ELECTRICAL ADJUSTMENT PROCEDURES

## SERVICE CAUTION

When servicing the Luminance, Chrominance C.B.A.s and the TV Demodulator Unit, take notice of following items.

A. Luminance and Chrominance C.B.A.s

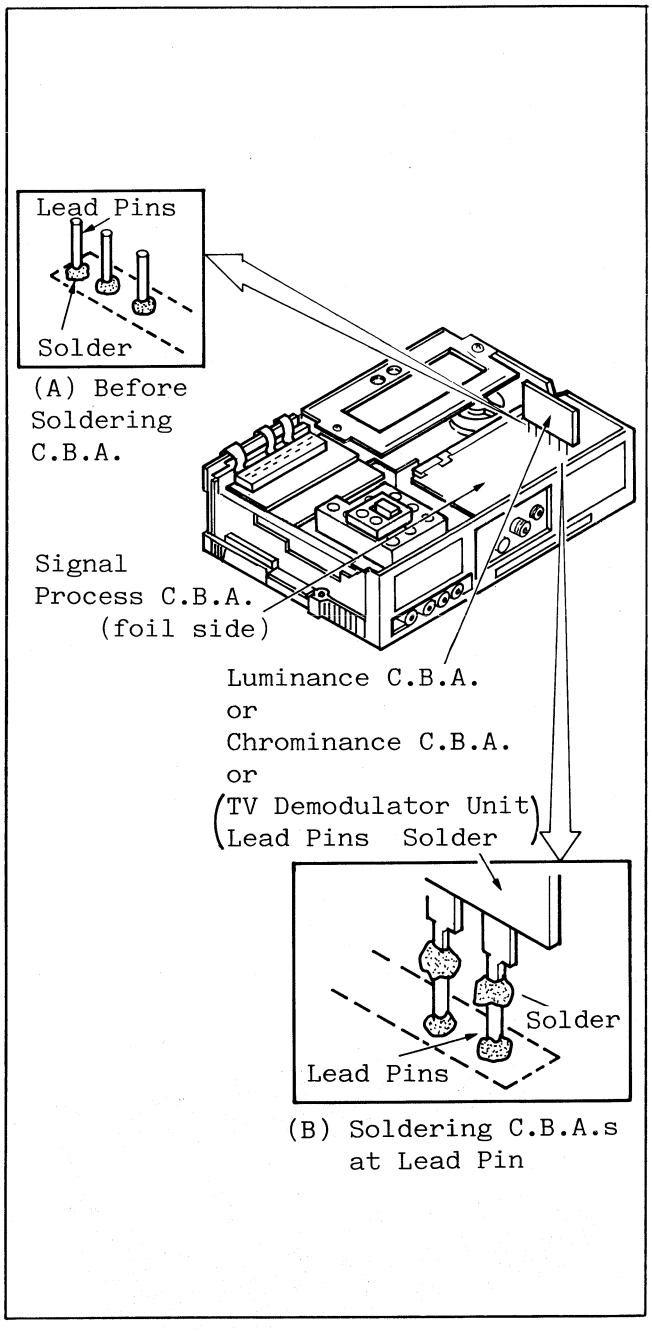
Do not bend or spread apart the Luminance and Chrominance C.B.A.s. By doing so, damage to the Signal Process C.B.A. or pins on the C.B.A.s may result.

B. Adjustment on these C.B.A.s and TV Demodulator Unit

Adjustment can be performed without removing these C.B.A.s or the TV Demodulator Unit.

C. Signal check and Replacement of parts on these C.B.A. and the TV Demodulator Unit.

1. Remove TV Demodulator or one of these C.B.A.s, then insert the Lead Pins and solder on the foil side of Signal Process C.B.A. as shown in (A) in figure.
2. Solder the TV Demodulator Unit or the extracted C.B.A. at the Pins on the Signal Process C.B.A. as shown in (B) in figure.
   Ensure that the pins numbers are aligned with their respective PC Board Pin locations.
3. Perform the signal check or replace parts.
4. After completion, restore to the original assembled condition.

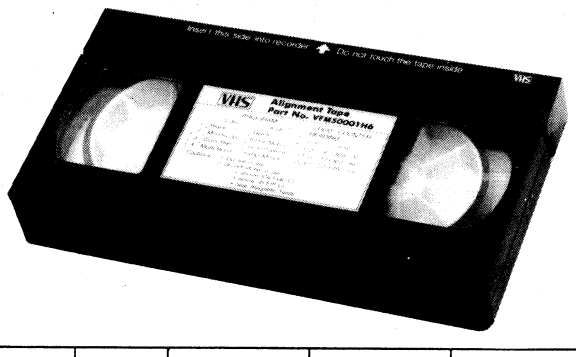



NOTE:
When troubleshooting the Luminance or Chrominance C.B.A. and soldering to the foil side of Signal Process C.B.A., remove the metal P.C.Board angle.

## 1. TEST EQUIPMENT

To perform the electrical adjustments completely, the following equipment is required.

1. DVM (Digital Volt Meter)
   Voltage Range : 0.001 - 50V
2. Dual-trace Oscilloscope
   Voltage Range : 0.001 - 50V/Div.
   Frequency Range : DC - 15MHz
   Probes : 10:1, 1:1
3. Frequency Counter
   Frequency Range : 0 - 150MHz
4. Signal Generator
   Sinewave : 0 - 10MHz
5. AC Millivolt Meter
   Voltage Range : 0 - 0.3mVrms
   : 0 - 3mVrms
6. Tuning Amp.
7. VIF Sweep Generator/Trap Adjuster
8. Spectrum Analyzer
9. NTSC Video Pattern Generator
10. DC Power Supply Unit
    Voltage : 0 - 15V DC
11. Variable Attenuater
    Attenuate : (+- 0) dB - -50dB
12. Monitor Scope
13. Color TV Receiver or Monitor
14. V-Hold ADJ. Tool (VFKS0031)
15. Plastic Tip Driver and Non-Metal Driver
16. Lock Screw Wrench (VFKS0032)
17. Isolation Transformer
18. VHS Alignment Tape (VFMS0001H6)




| Start Counter Reading | 0 (0) | 0020 ±8 (008 ±6) | 0135 ±12 (060 ±6) | 0240 ±20 (109 ±10) |
|---|---|---|---|---|
| Video | Blank | Monoscope | Color Bars | Multi-Burst |
| Audio | Blank | 6KHz(MONO) | 3KHz(STEREO) | 1KHz(MONO) |

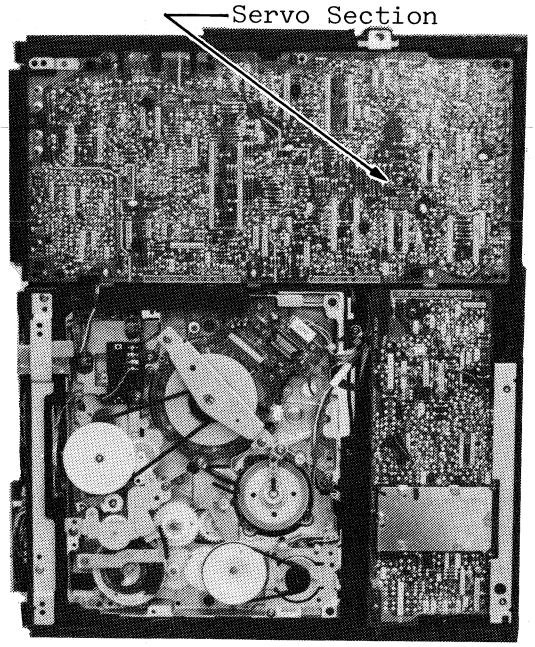
Fig. E1

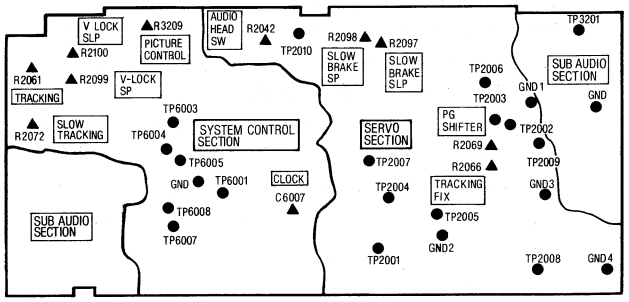
## 2. ADJUSTMENT PROCEDURES

These adjustment procedures consist of the following sections.

1. Servo Sectin
2. Audio Section
3. Luminance and Chrominance Section
4. System Control Section
5. TV Demodulator Section
6. IR Wireless Receiving Detector Section

### 2-1. SERVO SECTION




Main C.B.A.

Fig. E2

## 2-1-1. HEAD SWITCHING POSITION ADJUSTMENT

Test Points : TP2003, TP3201
Adjustment : R2069 (PG SHIFTER)

1. Playback color bar section of the alignment tape.
2. Connect the scope CH 1 to TP3201 on the Sub Audio Section and CH 2 to TP2003 on the Servo Section. Set the scope to the CHOP mode.
3. Also set the scope to the Delay mode or expand the vertical interval of the signal from TP3201.
4. Adjust the PG SHIFTER (R2069) so that the head switching point is 6 (+- 1) H before the start of vertical sync as shown below.

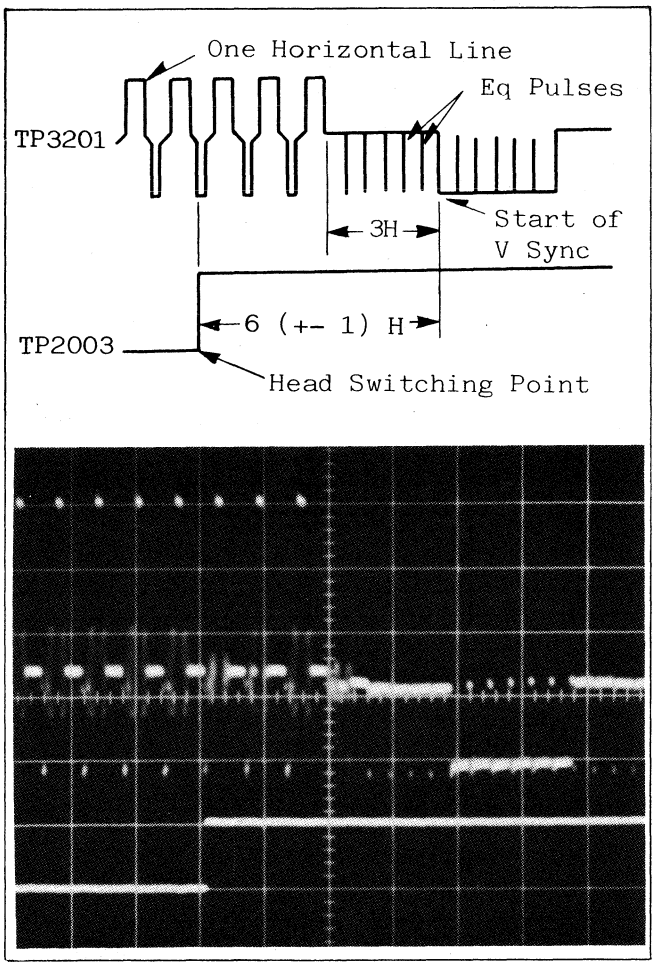



Fig. E3 TP3201 0.5V/0.1msec. div.
TP2003 5V/0.1msec. div.

5. Change the slope selector on the scope from "+" to "-" and make sure that the other switching point is also 6 (+- 1) H before the beginning of vertical sync.

## 2-1-2. TRACKING FIX ADJUSTMENT

Test Points : TP2002, TP2003
Adjustment : R2066 (TRACKING FIX)

1. Supply a video signal to the Video Input on the rear panel or tune in a local TV program.
2. Set the Tracking Control on the front panel to the center detent point.
3. Insert a cassette tape and make a recording in the SP mode for a few minutes.
4. Playback the portion just recorded.
5. Connect the scope CH 1 to TP2003 and CH 2 to TP2002 on the Servo Section.
6. Adjust the TRACKING FIX (R2066) so that the is 7.3 (+- 0.4) msec.

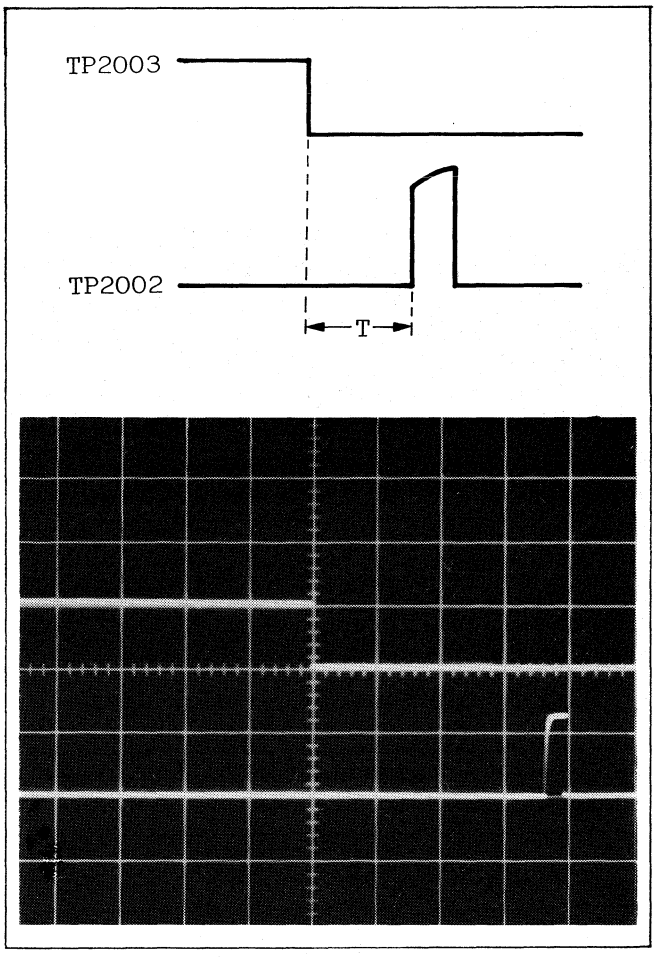



Fig. E4 TP2003 5V/2msec. div.
TP2002 1V/2msec. div.

## 2-1-3. SLOW BRAKE ADJUSTMENT

Test Points : TP2006, TP2007
Adjustments : R2098 (SLOW BRAKE-SP)
R2097 (SLOW BRAKE-SLP)

1. Supply a video signal to the video Input on the rear panel or tune in a local TV program.
2. Insert a cassette tape and make a recording in the SP mode for a few minutes.
3. Playback the portion just recorded.
4. Press the Slow/FA key on the front panel.
5. Connect the scope CH 1 to TP2007 and CH 2 to TP2006 on the Servo Section. Set the scope to the CHOP mode.
6. Adjust the SLOW BRAKE-SP (R2098) so that the A-portion is as shown below.

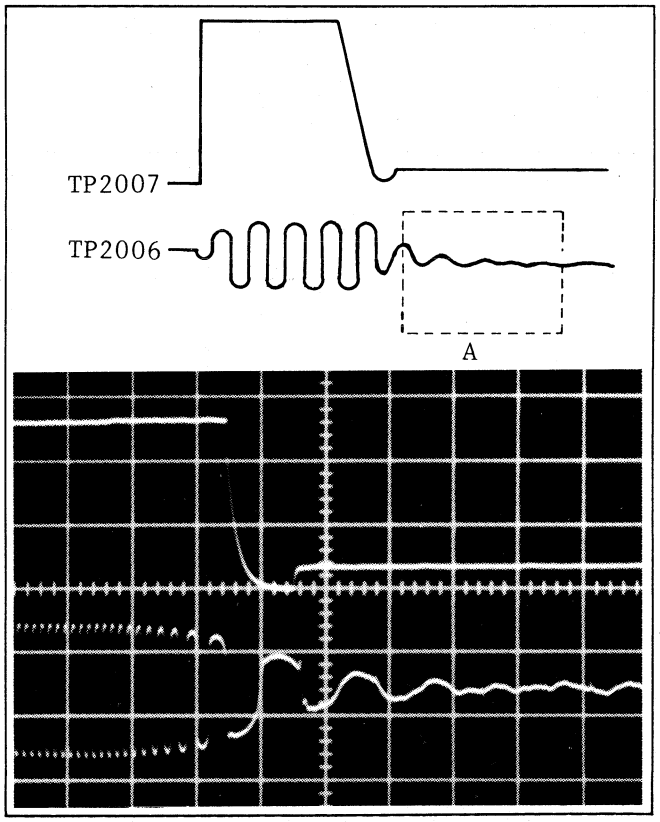



Fig. E5 TP2007 0.2V/10msec. div.
TP2006 0.5V/10msec. div.

7. In case of misadjustment, A-portion is as shown in Fig. E6.

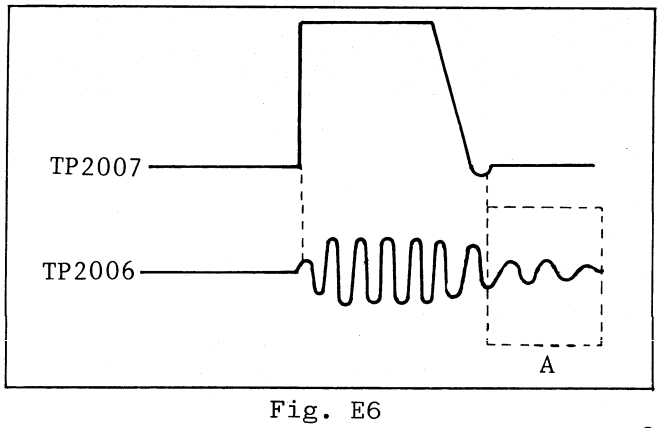



Fig. E6

8. Then, change to SLP and make a recording for a few minutes.
9. Playback the portion just recorded.
10. Press the Slow/FA key on the front panel.
11. Adjust the Slow BRAKE SLP (R2097) same as in the SP mode.

## 2-1-4. V LOCK ADJUSTMENT

Equipment : TV Monitor
Adjustments: R2100 (V-LOCK-SLP)
R2099 (V-LOCK-SP)

1. Supply a color bar signal to the Video Input on the rear panel or tune in a local TV program.
2. Insert a cassette tape and make a recording in the SLP mode for a few minutes.
3. Playback the portion just recorded.
4. Set the slow tracking VR on the front panel to the center detent point.
5. Push the PAUSE/STILL key.
6. Adjust the V-LOCK-SLP (R2100) on the System Control Section so that the center of picture is most stable.

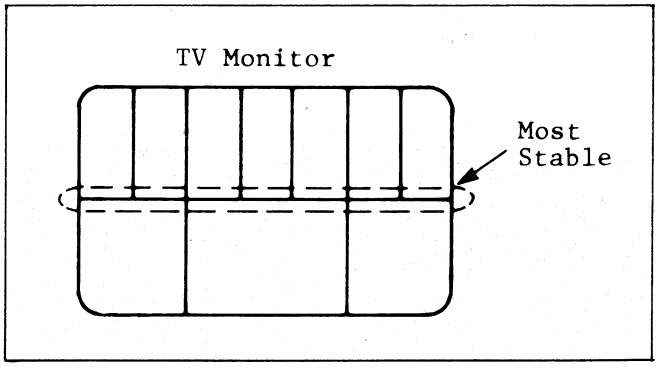



Fig. E7

7. Place the unit in SP mode and make a recording for a few minutes.
8. Playback the portion just recorded, and push the PAUSE/STILL key.
9. Adjust the V-LOCK-SP (R2099) on the System Control Section so that the center of picture is most stable.

## 2-1-5. AUDIO HEAD SWITCHING POSITION ADJUSTMENT

Test Points : TP2003, TP2010, TP4202
Adjustment : R2042 (AUDIO HEAD SW.)

1. Supply the video signal to the Video Input on the rear panel or tune in a local TV program.
2. Insert a cassette tape and make a recording in the SP mode.
3. Connect the scope CH 1 to TP2003 and CH 2 to TP2010 on the servo section.
4. Playback the portion just recorded.
5. Adjust the AUDIO HEAD SW. (R2042) so that the TA is 5.5 (+- 0.1) msec.

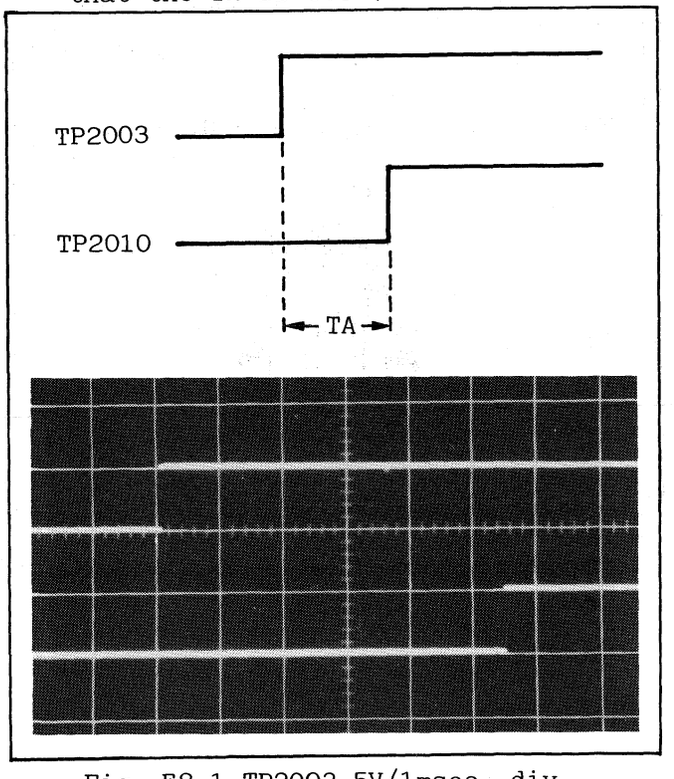



Fig. E8-1 TP2003 5V/1msec. div.
TP2010 5V/1msec. div.

(Confirmation)

6. Playback the portion just recorded and confirm that the envelope at TP4202 is as shown in Fig. E8-2.

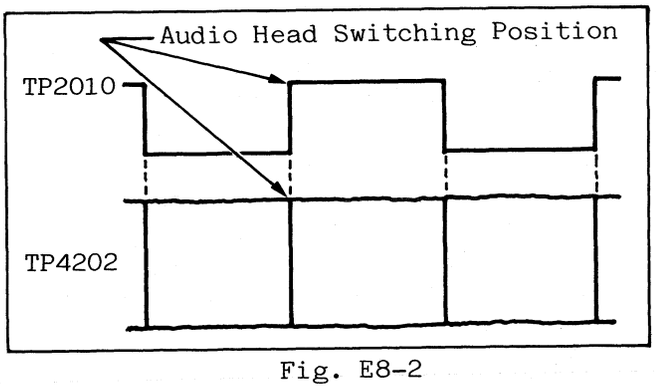



Fig. E8-2

7. If the envelope has the Drop Out (A-portion in Fig. E8-3), adjust the AUDIO HEAD SW. (R2042) so that the audio envelope has no drop out portion as shown in Fig. E8-2.

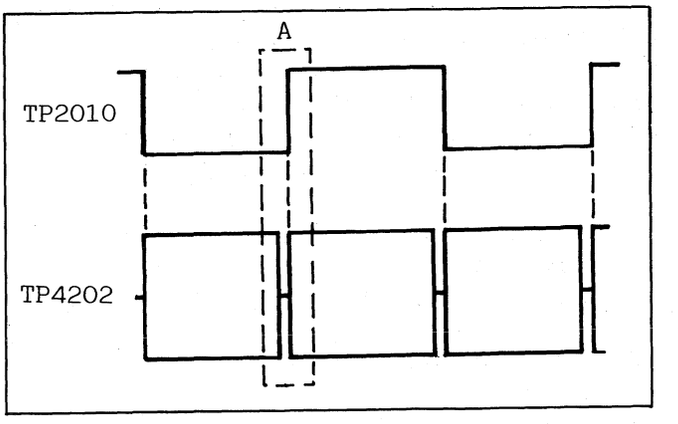



Fig. E8-3

## 2-2. AUDIO SECTION

### 2-2-1. NORMAL AUDIO SECTION

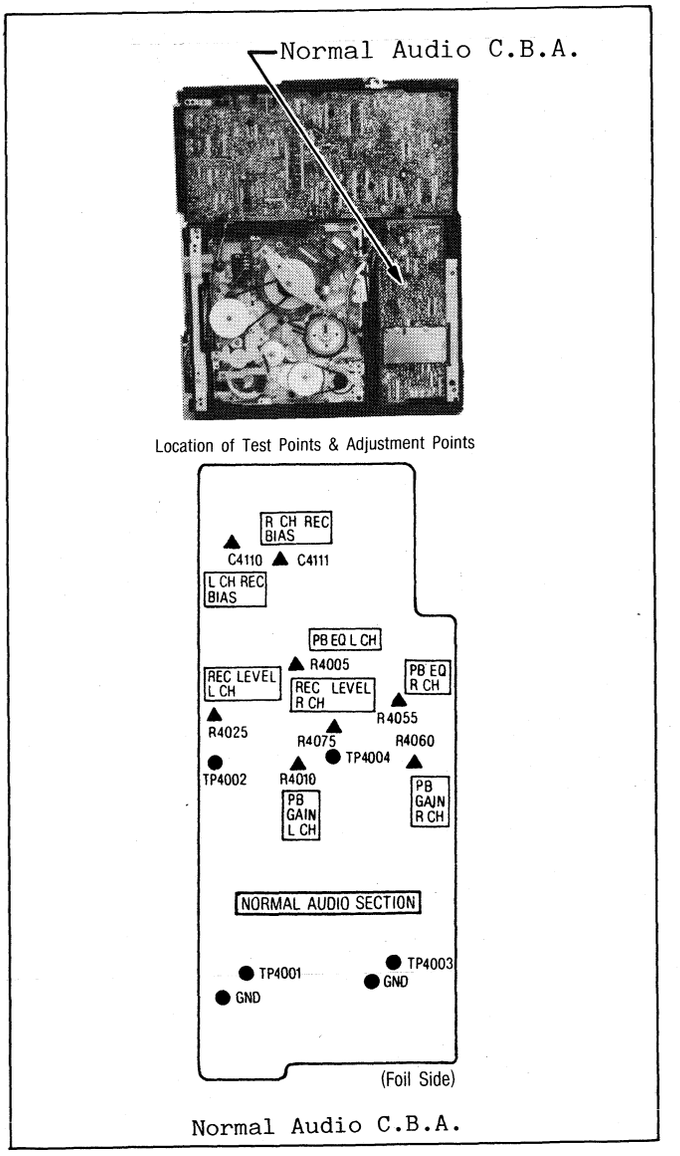



Fig. E9

## 2-2-1-1. BIAS CURRENT ADJUSTMENT

Test Point : Audio Head Terminal (L, R)
Adjustment : C4110 (L CH, REC BIAS)
C4111 (R CH, REC BIAS)

1. Plug in a phono plug to the Audio Input, but do not supply any audio signal to the AUDIO INPUT on the rear panel.
2. Insert a cassette tape and make a recording in the SP mode.
3. Connect the AC Millivolt Meter or scope as shown in Fig. E10.

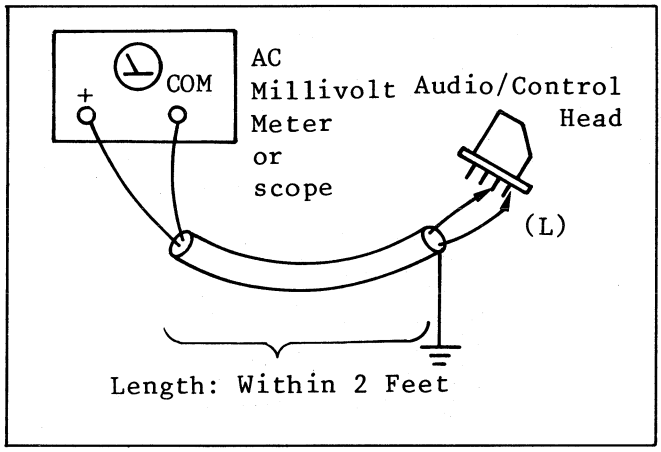



Fig. E10

4. While the recording is taking place, adjust the L CH REC BIAS (C4110) on the Normal Audio Section so that the voltage is within the specification.
5. Change the connected point of the AC Millivolt Meter or scope as shown in Fig. E11.

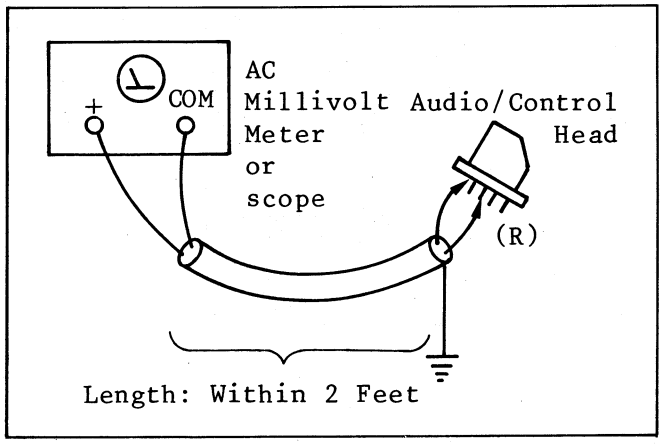
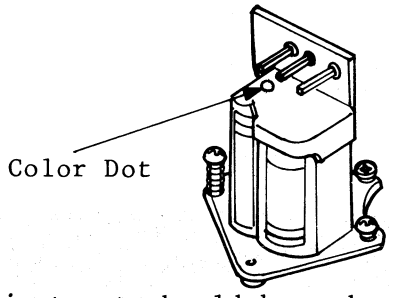



Fig. E11

6. During recording, adjust the R CH REC BIAS (C4111) on the Normal Audio Section so that the voltage is within the specification.
(Specification should be decided by the color of the dot on A/C Head.)

| COLOR DOT | ADJUSTMENT VOLTAGE |
|---|---|
| NO COLOR DOT | 1.5 (+- 0.05) mVrms or 4.3 (+- 0.1) mVp-p |
| WHITE COLOR | |




Adjustment should be made depending on the color of the dot on the A/C head as above.

Fig. E12

7. Remove the AC Millivolt Meter or scope.

Note:
For Service replacement, A/C Head without color dot is supplied.

## 2-2-1-2. PLAYBACK GAIN ADJUSTMENT

Test Points : TP4001 (L CH)
TP4003 (R CH)
Adjustments : R4010 (PB GAIN-L CH)
R4060 (PB GAIN-R CH)

1. Playback Multi-Burst section (1kHz Audio) of the alignment tape (VFMS0001H6).
2. Connect the scope CH 1 to TP4001 and CH 2 to TP4003 on the Normal Audio Section.
3. Set the DOLBY NR Switch on the front panel to OFF.
4. Set the scope to CH 1 mode and adjust the PB GAIN-L CH (R4010) on the Normal Audio Section so that the level of waveform is 300 (+- 15)mVp-p.

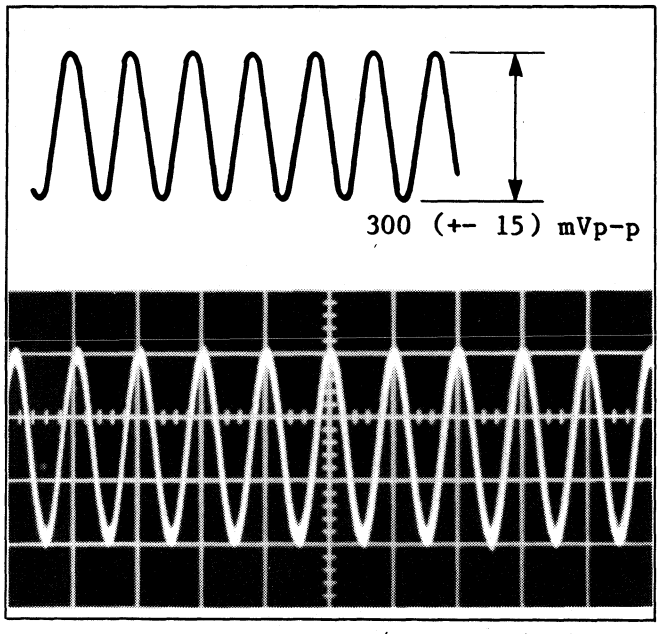



Fig. E13 TP4001 0.1V/1msec. div.

5. Set the scope to CH 2 mode and adjustment PB GAIN-R CH (R4060) on the Normal Audio Section so that the level of waveform is 300 (+- 15) mVp-p.

### 2-2-1-3. Recording Gain Adjustment

Test Points : TP4001, TP4003
Adjustments : R4025 (REC LEVEL-L CH)
R4075 (REC LEVEL-R CH)

(L Channel)

1. Connect the Signal Generator to AUDIO IN (L) jack on the rear panel.
2. Supply a sinewave signal (1KHz, -10dB, 890mVp-p) from the Signal Generator.
3. Set the DOLBY NR Switch on the front panel to OFF.
4. Place the unit in SP recording mode.
5. Connect the scope to TP4001 on the Normal Audio Section and set the recording level at approx. 1.3 Vp-p as a starting point of this adjustment.
6. Playback the portion just recorded and read the level of Playback.
7. Confirm that the Recording level and Playback level are the same level.
8. If the Recording level and Playback level aren't the same. During Recording, turn the REC LEVEL-L (R4025) to slightly increase or decrease the signal level.
9. Repeat above step 4 to 8 until Recording level and Playback level are the same.

(R Channel)

1. Connect the signal Generator to AUDIO IN (R) jack on the rear panel.
2. Supply a sinewave signal (1KHz, -10dB, 890mVp-p) from the Signal Generator.
3. Place the unit in SP recording mode.
4. Connect the scope to TP4003 on the Normal Audio Section and set the recording level at approx. 1.3Vp-p as a starting point of this adjustment.
5. Playback the portion just recorded and read the level of playback.
6. Adjust the REC LEVEL-R (R4075) as is done in L channel adjustment.

### 2-2-1-4. Overall Frequency Response Adjustment

Test Points : TP4001 (L CH)
TP4003 (R CH)
Adjustments : R4005 (PB EQ-L CH)
R4055 (PB EQ-R CH)

1. Supply the color bar signal to the Video Input on the rear panel.
2. Supply a sinewave signal (1KHz and 5kHz, 40dB, 28mVp-p) to either Audio Input L CH or R CH on the rear panel.
3. Connect the AC Millivolt Meter to TP4001 on the Normal Audio Section.
4. Insert a cassette tape and make a recording in SP mode 1KHz first, then 5KHz.
5. Connect the phono plug to Audio Out jack (R CH).
6. Playback the portion just recorded.
7. Adjust PB EQ-L CH(R4005) on the Normal Audio Section so that the 1KHz and 5KHz outputs are balanced.
8. Then, connect the AC Millivolt Meter to TP4003 on the Normal Audio Section.
9. Remove the phono plug from Audio Out jack (R CH), then connect the phono plug to Audio Out jack (L CH).
10. Playback the portion just recorded.
11. Adjust the PB EQ-R CH (R4055) on the Normal Audio Section so that the 5KHz output is 0 (+- 0.5) dB of 1KHz output.
12. Remove the AC Millivolt Meter and the Phono plug.

## 2-2-2. FM AUDIO SECTION

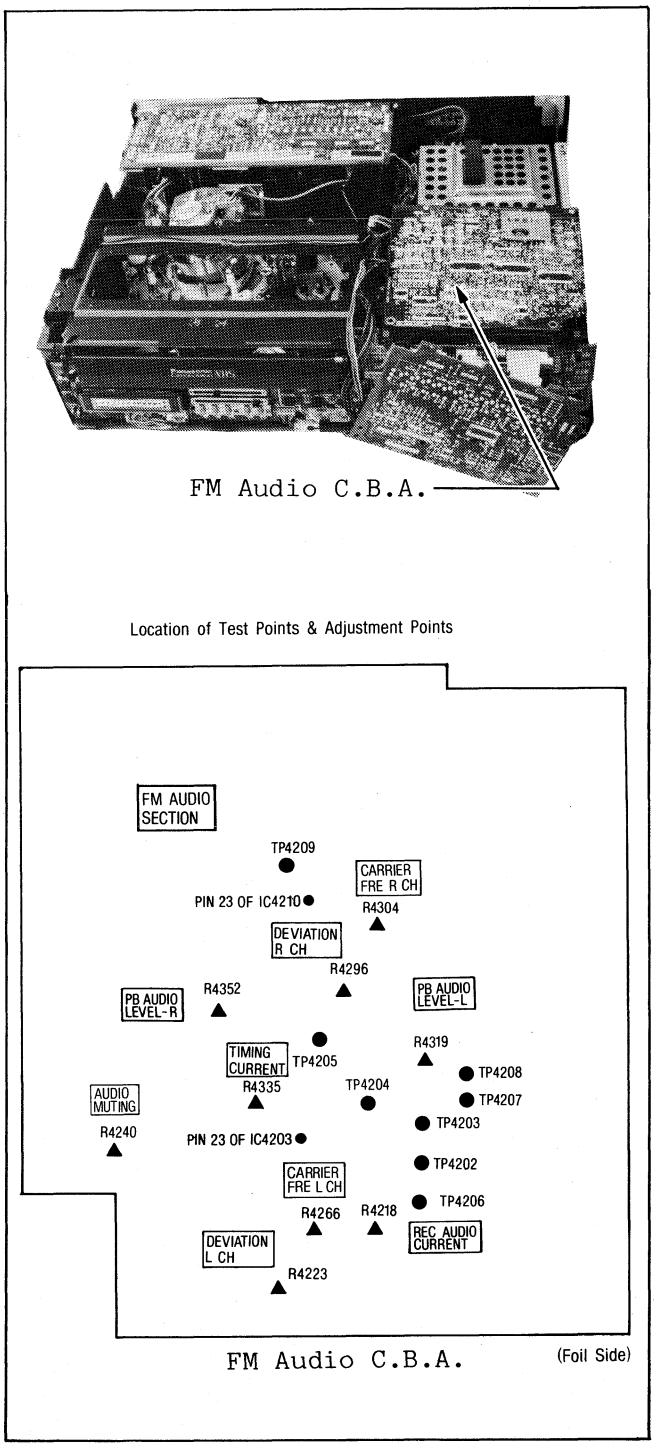



Fig. E14

When Servicing the FM Audio C.B.A., take notice of following items.

1. Disconnect the AC plug from the AC outlet.
2. Remove the 2 Screws (A), then remove the FM Audio C.B.A. When removing the FM Audio C.B.A., and keeping it tilted up, move it away from the front of the unit to free it.

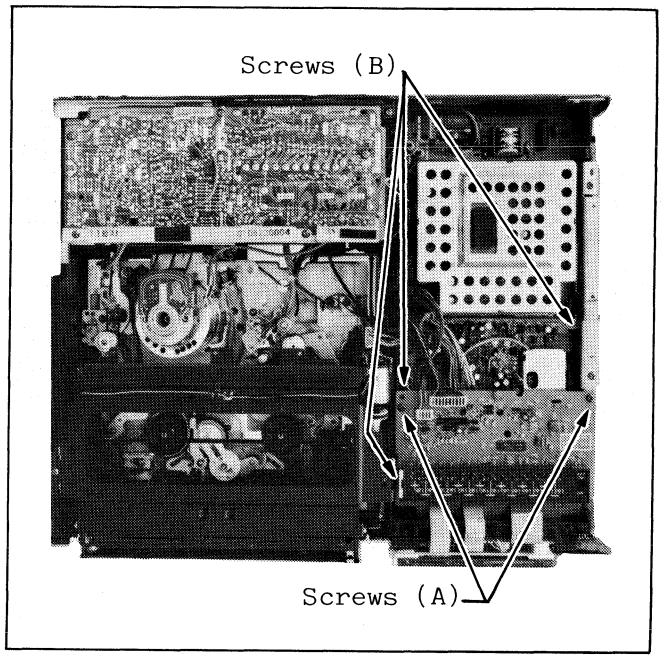



Fig. E15

3. Remove the Shield Plate on the FM Audio C.B.A. by removing the 3 plastic rivets that secure it to the C.B.A. Then lay the Shield Plate on the Cassette up Unit, underneath the C.B.A. Let the C.B.A. rest on the Shiled Plate as shown in Fig. E14.

### 2-2-2-1. CARRIER FREQUENCY AND AUDIO DEVIATION ADJUSTMENT

Test Points: TP4203, TP4206, pin23 of IC4203, pin 23 of IC4210
Adjustments: R4266 (CARRIER FRE-L)
R4304 (CARRIER FRE-R)
R4223 (DEVIATION - L)
R4296 (DEVIATION - R)

A:L-CHANNEL

(A-1, Carrier Frequency Adjustment)

1. Set the Input Select Switch on the front panel to LINE mode.
2. Connect the Phono plug to Audio IN jack (L CH) to complete no signal condition.

3. Place the unit in STOP mode.
4. Connect the frequency counter to TP4203 on the FM Audio Section.
5. Adjust the CARRIER FRE-L (R4266) so that the frequency is 1300 (+- 5) KHz.

(A-2, Audio Deviation Adjustment)

6. Connect the DVM to pin 23 of IC4203 on the FM Audio section and read the voltage level.
7. Connect the pin 23 of IC4203 to GND through the resistor and the variable resistor (500kΩ) as shown below.

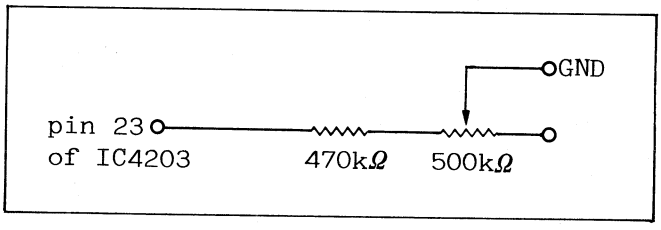



Fig. E16

8. Turn the variable resistor (500kΩ) so that the frequency is 1250 (+- 2) KHz. Then read the voltage level at pin 23 of IC4203.
9. Remove the DVM, resistor and the variable resistor.
10. Remove the Phono plug. Then supply a sinewave signal (1KHz, -20dB, 283mVp-p) to Audio IN (L) jack on the rear panel.
11. Connect the AC Millivolt Meter or scope to pin 23 of IC4203.
12. Calculate "A" using the formula below.
13. Adjust the DEVIATION -L (R4223) on the FM Audio Section so that the voltage level is the same as calculated in step 12.

$$\text{AC Millivolt Meter(Vrms)} = \frac{V}{\sqrt{2}} = A$$

V : Voltage difference between step 6 and step 8

B:R-CHANNEL

(B-1, Carrier Frequency Adjustment)

1. Set the Input Select Switch on the front panel to LINE mode.
2. Connect the Phono plug to Audio IN jack (R CH) to complete no signal condition.
3. Place the unit in STOP mode.
4. Connect the frequency counter to TP4206 on the FM Audio Section.
5. Adjust the CARRIER FRE-R (R4304) so that the frequency is 1700 (+- 5) KHz.

(B-2, Audio Deviation Adjustment)

6. Connect the DVM no pin 23 of IC4210 on the FM Audio Section and read the voltage level.
7. Connect the pin 23 of IC4210 to GND through the resistor and the variable resistor as shown Fig. E16.
8. Turn the variable resistor (500kΩ) so that the frequency is 1650 (+- 2) KHz. Then read the voltage level at pin 23 of IC4210.
9. Remove the DVM, resistor and the variable resistor.
10. Remove the Phono plug. Then supply a sinewave signal (1KHz, -20dB, 283mVp-p) to Audio IN(R) jack on the rear panel.
11. Connect the AC Millivolt Meter or scope to pin 23 of IC4210.
12. Adjust the DEVIATION-R(R4296) on the FM Audio Section as is done in L channel Adjustment.

### 2-2-2-2. AUDIO RECORDING CURRENT ADJUSTMENT

Test Points : TP4207, TP4208
Adjustment : R4218 (REC-AUDIO-CURR)

1. Set the Input Select Switch on the front panel to LINE mode.
2. Connect the Phono plug to Audio IN jack (L CH).
3. Insert a cassette tape and make a recording in the SP mode.
4. Connect the scope between TP4207(HOT) and TP4208(GND) on the FM Audio Section.
5. Adjust the A-REC CURR (R4218) on the FM Audio Section so that the level of waveform is 260 (+- 10) mVp-p.

### 2-2-2-3. TIMING CURRENT ADJUSTMENT

Test Points : TP4204, TP4205
Adjustment : R4335 (TIMING CURR)

1. Set the Input Select Switch on the front panel to LINE mode.

2. Supply a sinewave signal (1KHz,-20dB, 283mVp-p) to either Audio Input L CH or R CH on the rear panel.
3. Place the unit in STOP mode.
4. Connect the DC Millivolt Meter between TP4204(HOT) and TP4205(GND) on the FM Audio Section.
5. Adjust the TIMING CURR (R4335) on the FM Audio Section so that the voltage is 15.0 (+- 0.1) mVDC.

### 2-2-2-4. AUDIO PLAYBACK LEVEL ADJUSTMENT

Test points : Audio out jack (L), (R)
Adjustments : R4319 (PB AUDIO LEVEL-L)
R4352 (PB AUDIO LEVEL-R)

(L-channel)
1. Set the Input Select Switch on the front panel to LINE mode.
2. Supply a sinewave signal(1KHz, -20dB, 283mVp-p) to either Audio Input L CH or R CH on the rear panel.
3. Insert a cassette tape and make a recording in the SP mode.
4. Push the HiFi button and L/R button on the front panel.
Then, connect the phono plug to the Audio out jack (R) on the rear panel.
5. Connect the scope to Audio out jack(L) on the rear panel and read the level of recording.
6. Playback the portion just recorded and read the level of playback.
7. Adjust the PB AUDIO LEVEL-L(R4319) so that the Recording level and playback level are the same level.

(R-channel)
1. Set the Input Select Switch on the front panel to LINE mode.
2. Supply a sinewave signal (1KHz, -20dB, 283mVp-p) to either Audio Input L CH or R CH on the rear panel.
3. Insert a cassette tape and make a recording in the SP mode.
4. Push the HiFi button and L/R button on the front panel.
Then, connect the phono plug to the Audio out jack (L) on the rear panel.
5. Connect the scope to Audio out jack (R) on the rear panel and read the level of recording.
6. Playback the portion just recorded and read the level of playback.
7. Adjust the PB AUDIO LEVEL-R(R4352) so that the Recording level and Playback level are the same level.

### 2-2-2-5. AUDIO MUTING ADJUSTMENT

Test Point : TP4202
Adjustment : R4240 (AUDIO MUTING)

1. Set the Input Select Switch on the front panel to LINE mode.
2. Connect the Phono plug to Audio IN jack (L CH).
3. Push the HiFi button and L/R button on the front panel.
4. Turn the Tracking Control on the front panel to center detent point.
5. Insert a cassette tape and make a recording in SP mode for a few minutes.
6. Playback the just Recorded portion.
7. Connect the scope to TP4202 on the FM Audio Section.
8. Adjust the Tracking VR so that the amplitude of the signal at TP4202 is reduced to 1/3.
9. First adjust AUDIO MUTING (R4240) until the HiFi indication on the front panel turns OFF.
10. Then slowly adjust AUDIO MUTING (R4240) to the point where the HiFi indication just turns ON.
11. Confirm that the sounds on CH-L and CH-R do not contain abnormal sound.

## 2-3. LUMINANCE AND CHROMINANCE SECTION

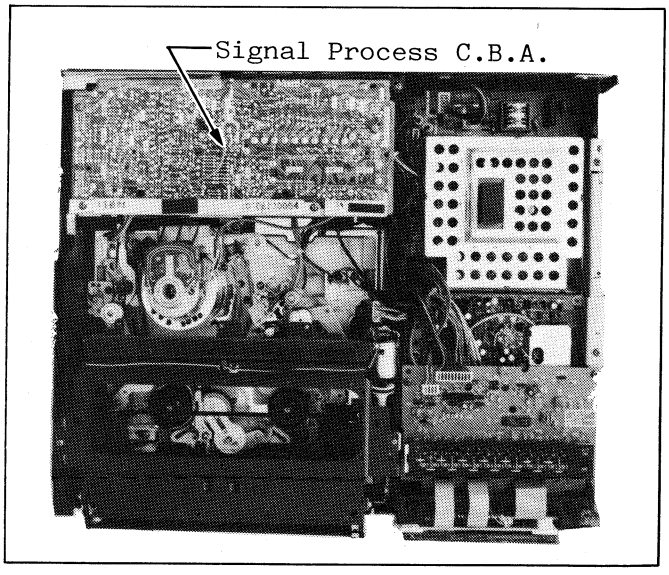
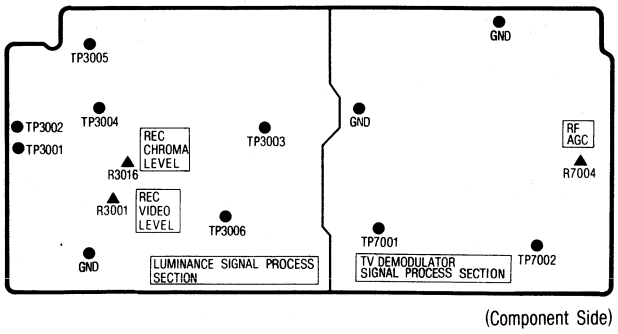
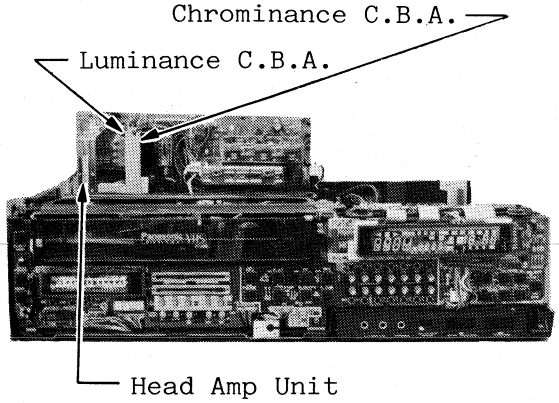
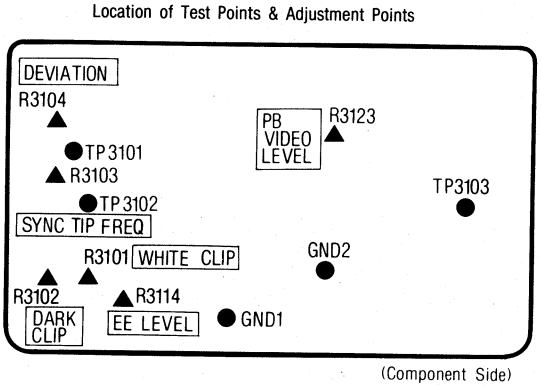



Fig. E17

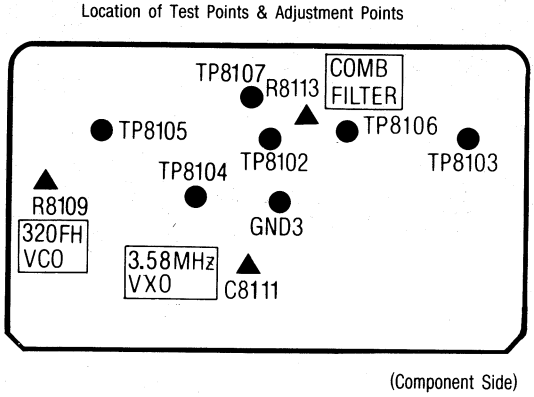



Signal Process C.B.A.



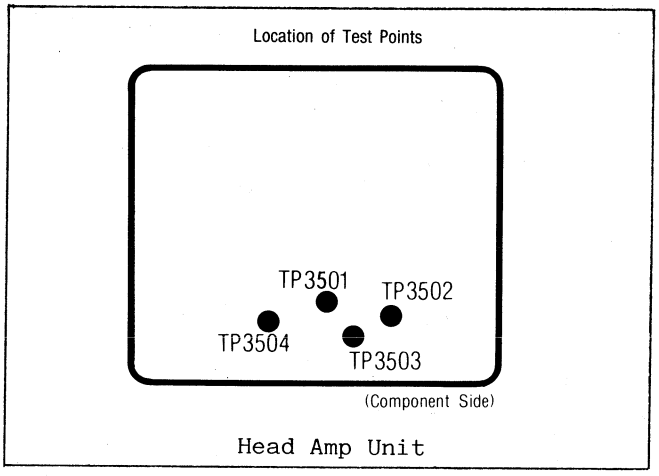




Luminance C.B.A.




Chrominance C.B.A.

Fig. E18




Head Amp Unit

Fig. E19

## 2-3-1. E-E LEVEL ADJUSTMENT

Test Point : TP3004
Adjustment : R3114 (E-E LEVEL)

1. Supply an NTSC Color Bar Signal W/White Window (1Vp-p) to the Video Input on the rear panel.
2. Connect the scope to TP3004 on the Signal Process C.B.A.
3. Place the unit in STOP mode.
4. Adjust the E-E LEVEL (R3114) on the Luminance C.B.A. so that the video level is 2.0 (+- 0.1) Vp-p.

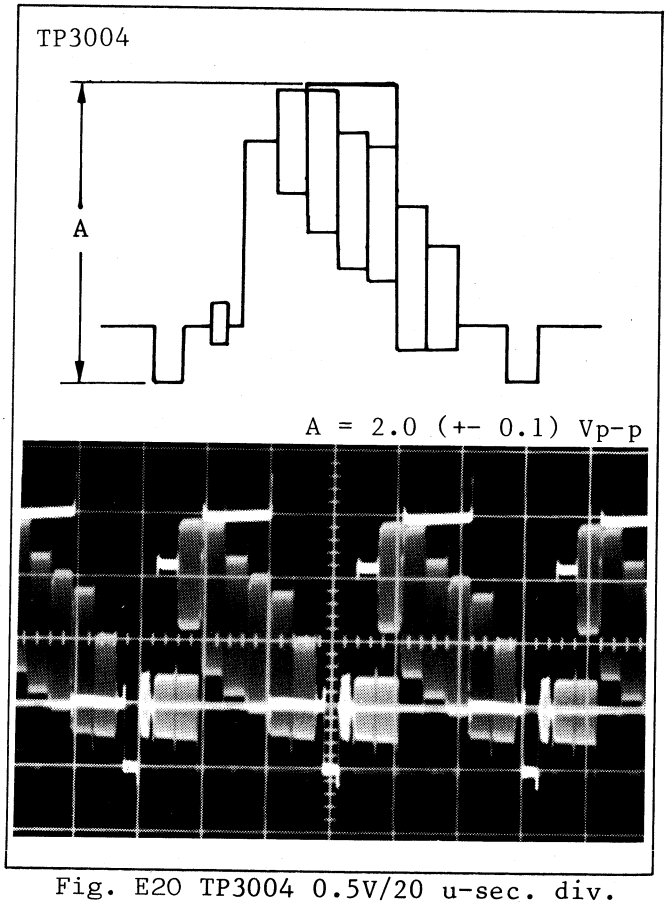



Fig. E20 TP3004 0.5V/20 u-sec. div.

## 2-3-2: SYNC TIP FREQUECY AND DEVIATION ADJUSTMENT

Test Points : TP3501, TP3504, TP3002
Adjustments : R3103 (SYNC TIP FREQ)
R3104 (DEVIATION)

(A-1, Sync Tip Frequency Adjustment)

1. Plug in a phono plug to the Video Input on the rear panel, but do not supply video signal.
2. Connect the frequency counter to TP3002 on the Luminance Signal Process Section.
3. Insert a cassette tape and place the unit in LP REC mode.
4. Adjust the SYNC TIP FREQ (R3103) so that the frequency is 3.4 (+- 0.04) MHz.
5. Remove the frequency counter.

(A-2, Deviation Adjustment)

6. Turn the WHITE CLIP (R3101) and the DARK CLIP (R3102) to fully counter-clockwise from the component side.
7. Turn the REC VIDEO LEVEL (R3001) to fully counterclockwise and the REC CHROMA (R3016) to fully clockwise from the component side.
8. Connect a signal generator (sinewave) to TP3001 through the resistor (1kΩ). Set the frequency and the output level of the signal generator.
   Frequency : 4.35 (+- 0.04) MHz
   Output Level : 0.1Vp-p

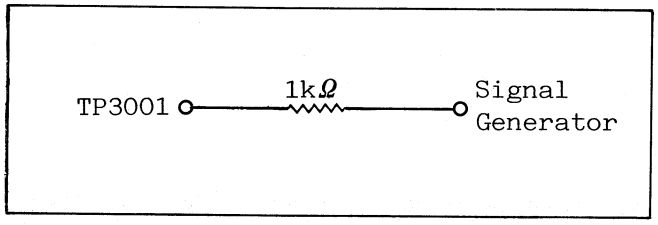



Fig. E21

9. Supply an NTSC Color Bar Signal (1Vp-p) to the Video Input on the rear panel.
10. Connect the scope to TP3501 (HOT) and TP3504 (GND) on the Head Amp Section. Use TP3006 as a trigger.
11. Turn the DEVIATION (R3104) to fully clockwise from the component side. Then slowly adjust the DEVIATION (R3104) so that maximum inner beat is procedure as shown in Fig. E22.

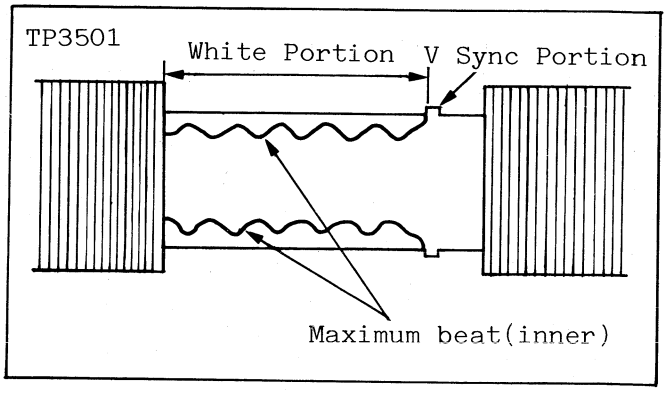



Fig. E22

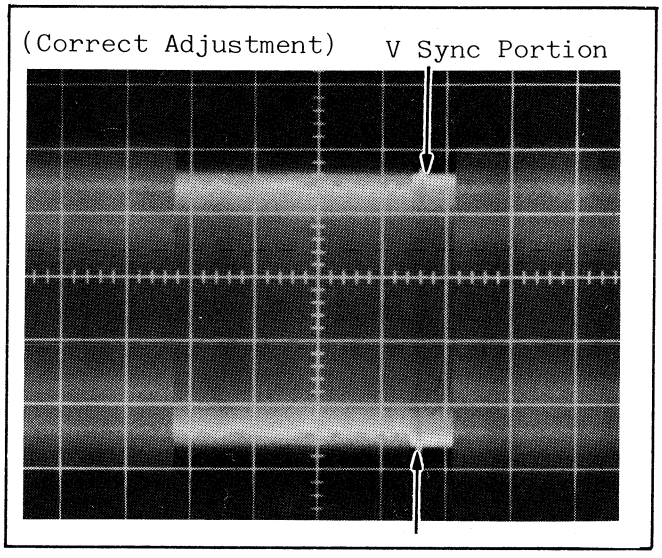



Fig. E23 TP3501 20mV/2msec. div.

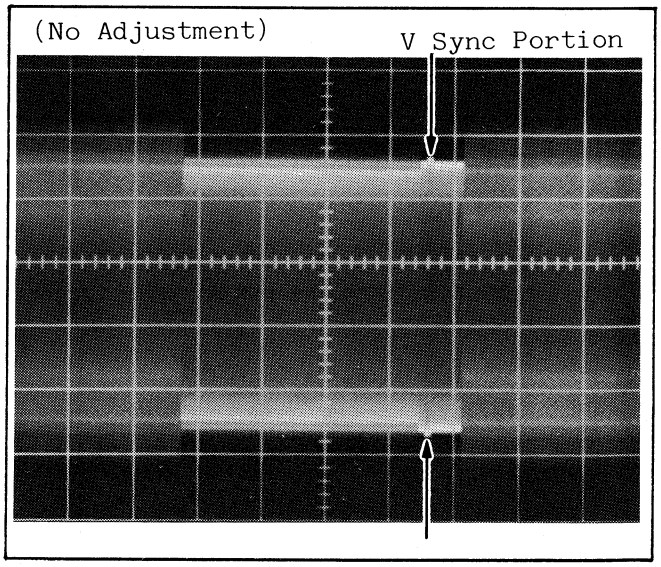



Fig. E24 TP3501 20mV/2msec. div.

Note : Inner beat is used for this adjustment but not outer beat as shown in Fig. E25.

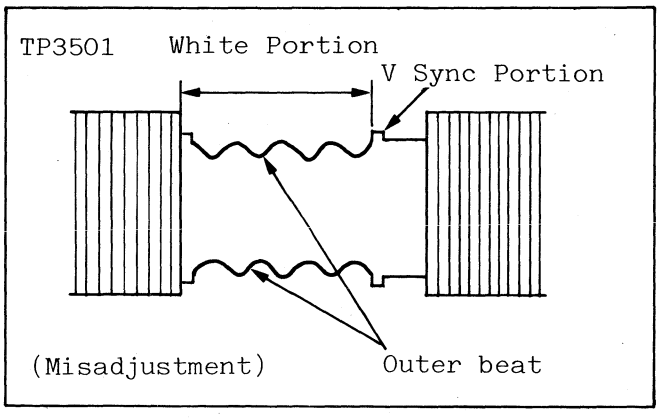



Fig. E25

12. Remove the resistor and a signal generator.
13. Make WHITE and DARK CLIP adjustment and Recording Current adjustment.

## 2-3-3. WHITE AND DARK CLIP ADJUSTMENT

Test Point : TP3101
Adjustments: R3101 (WHITE CLIP)
R3102 (DARK CLIP)

1. Supply an NTSC color Bar Signal W/White Window to the Video Input on the rear panel.
2. Connect the scope to TP3101 on the Luminance C.B.A.
3. Place the unit in SP REC mode.
4. Adjust the WHITE CLIP (R3101) and the DARK CLIP (R3102) on the Luminance C.B.A. so that the over-shoot and undershoot are as shown in Fig. E26.

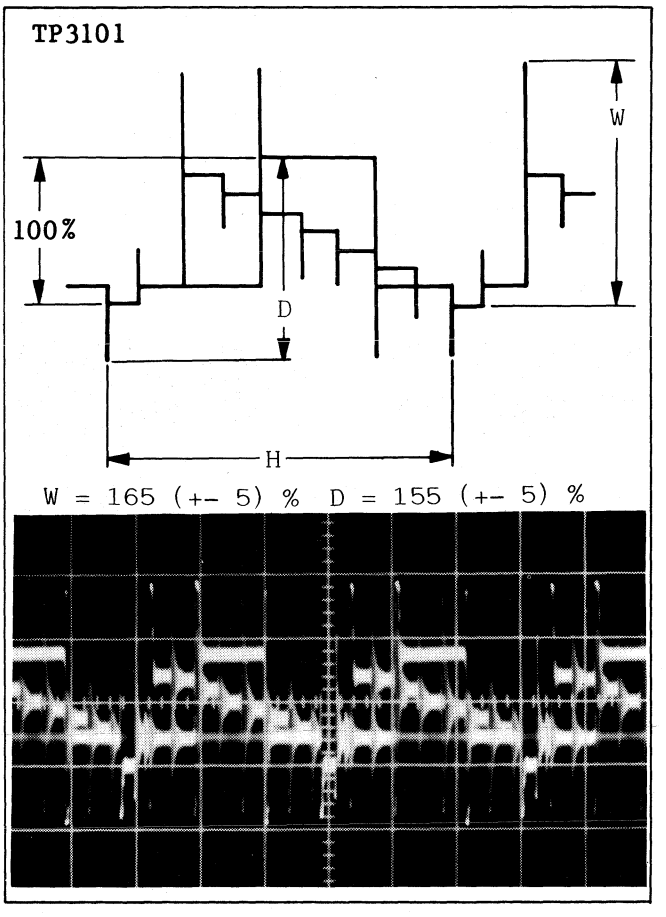



Fig. E26 TP3101 0.2V/20 u-sec. div.

## 2-3-4. RECORDING CURRENT ADJUSTMENT

Test Points : TP3004, TP3006, TP3501, TP3504
Adjustments : R3001 (REC VIDEO LEVEL)
R3016 (REC CHROMA LEVEL)

1. Supply an NTSC color Bar Signal W/White Window to the Video Input on the rear panel.
2. Insert a cassette tape and make a recording in the LP mode.
3. Connect the scope between TP3501 (HOT) and TP3504 (GND) on the Head Amp Section.
4. Turn the REC VIDEO LEVEL (R3001) fully counterclockwise from the component side.
5. Set the scope 20mV/div., 10 u-sec/div. Use TP3004 as scope trigger.
6. Adjust the REC CHROMA (R3016) on the Luminance Signal Process Section so that the level of cyan portion is 36 (+- 3) mVp-p.

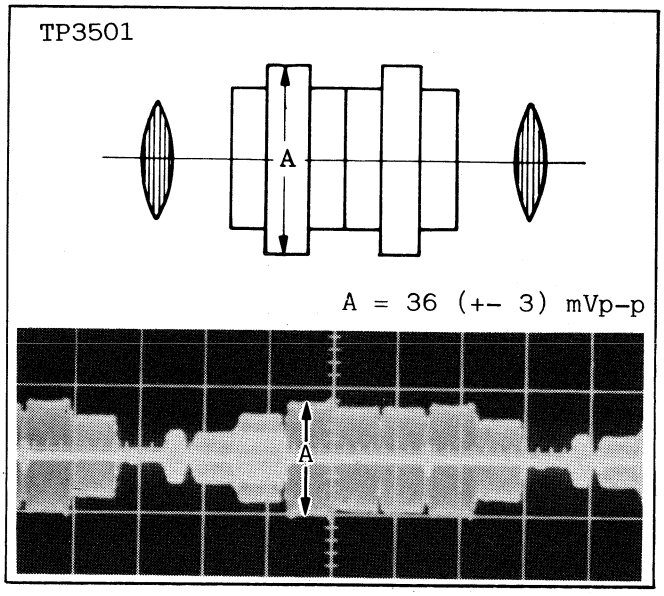



Fig. E27 TP3501 20mV/10 u-sec. div.

7. Then set the scope 20mV-div., 2msec/div.
   Use TP3006 as scope trigger.
8. Adjust the REC VIDEO LEVEL (R3001) on the Luminance Signal Process Section so that the level of V sync portion is 110 (+- 3) mVp-p.

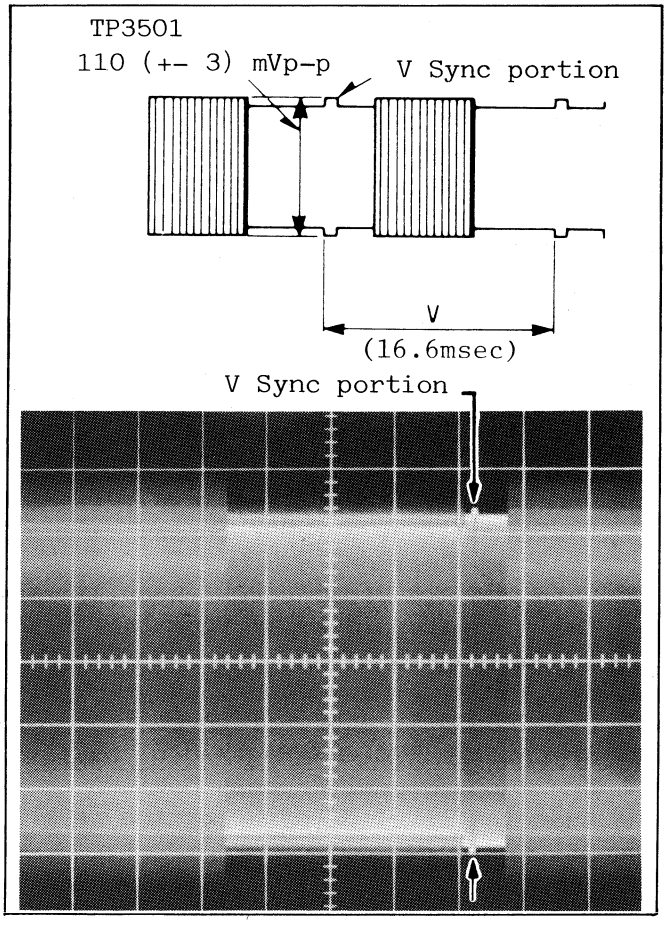



Fig. E28 TP3501 20mV/2msec. div.

## 2-3-5. 320FH VCO ADJUSTMENT

Test Point : TP8103
Adjustment : R8109 (320FH VCO)

1. Place the unit in STOP mode.
2. Connect the test point (TP8105) to Pin 3 of Chrominance C.B.A. through the resistor (1kΩ) and the diodes (MA165).

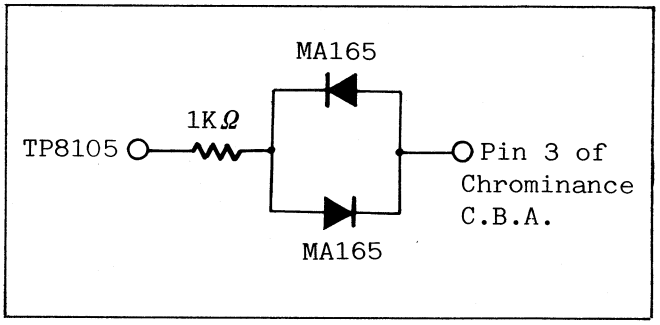



Fig. E29

3. Connect the frequency counter to TP8103 on the Chrominance C.B.A.
4. Adjust the 320FH VCO (R8109) from the component side on the Chrominance C.B.A. so that the frequency is 4.2 (+- 0.1) MHz.
5. Remove the frequency counter, resistor/diodes.

## 2-3-6. 3.58MHz VXO ADJUSTMENT

Test Point : TP8104
Adjustment : C8111 (3.58MHz VXO)

1. Place the unit in STOP mode.
2. Connect the test point (TP8102) to GND on the Chrominance C.B.A. through the resistor (22kΩ) and the capacitor (0.01 u-F).

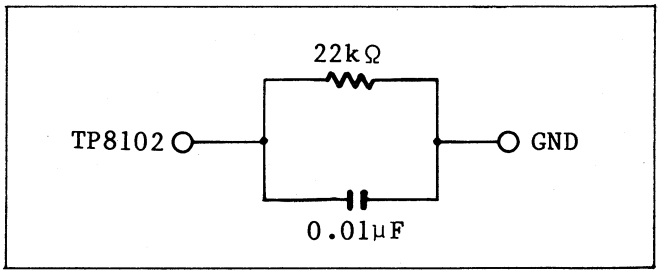



Fig. E30

3. Connect the frequency counter to TP8104 on the Chrominace C.B.A.

4. Adjust the 3.58MHz VXO (C8111) from the component side on the Chrominance C.B.A. so that the frequency is 3.579545 MHz (+- 20) Hz.
5. Remove the frequency counter, resistor/capacitor.

## 2-3-7. COMB FILTER ADJUSTMENT

Test Point: TP3004
Adjustment: R8113 (COMB FILTER)

1. Supply a color bar signal to the Video Input on the rear panel.
2. Insert a cassette tape and make a recording in the SLP mode.
3. Connect the scope to TP3004 on the Luminance Signal Process Section.
4. Playback the portion just recorded.
5. Turn the Tracking Control on the front panel for the poorest tracking. (Worst playback image.)
6. During playback, adjust the COMB FILTER (R8113) on the Chrominance C.B.A. from the component side as shown below.

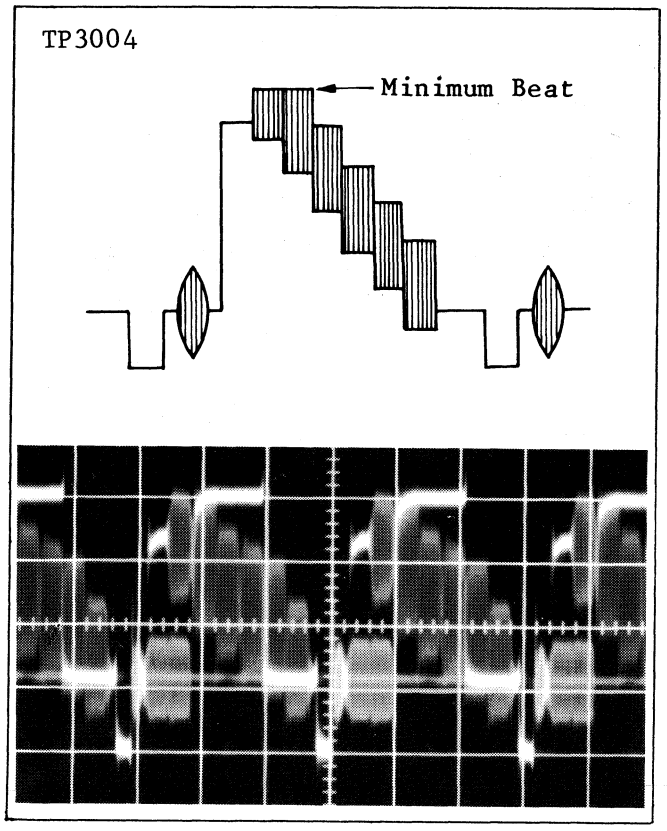



Fig. E31 TP3004 0.5V/20 u-sec. div.

## 2-3-8. PLAYBACK LEVEL ADJUSTMENT

Test Point: TP3004
Adjustment: R3123 (PB VIDEO LEVEL)

1. Supply an NTSC Color Bar Signal W/White Window (1Vp-p) to the Video Input on the rear panel.
2. Insert a cassette and make a recording in the SP mode for a few minutes.
3. Connect the scope to TP3004 on the Luminance Signal Process Section.
4. Playback the portion just recorded.
5. During playback, adjust the PB VIDEO LEVEL (R3123) on the Luminance C.B.A. so that the video level is 2.0 (+- 0.1) Vp-p.
6. Confirm that the level of cyan portion is 1.26 (+- 0.2) Vp-p.

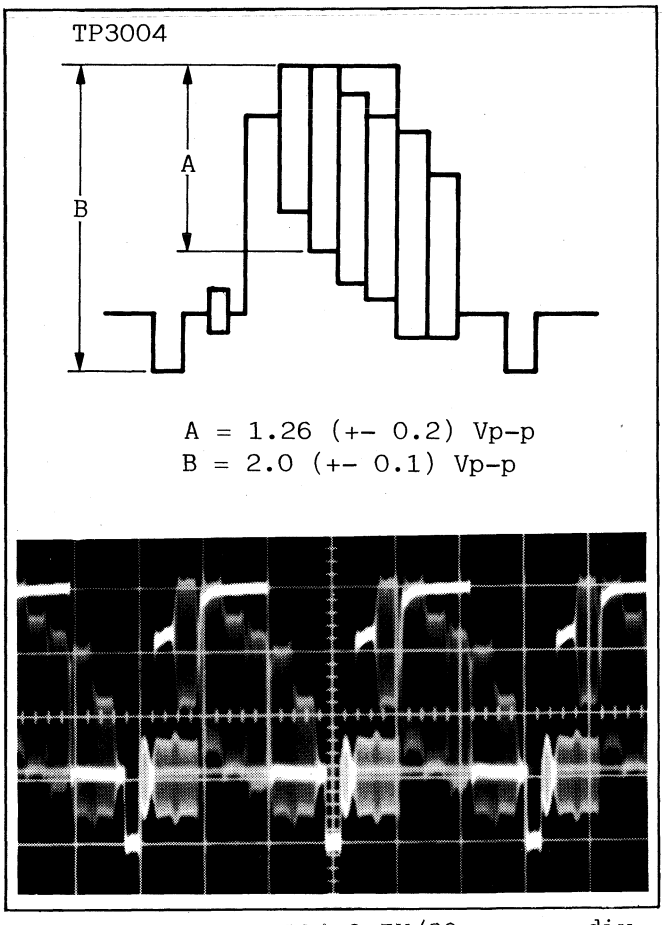



Fig. E32 TP3004 0.5V/20 u-sec. div.

## 2-4. SYSTEM CONTROL SECTION

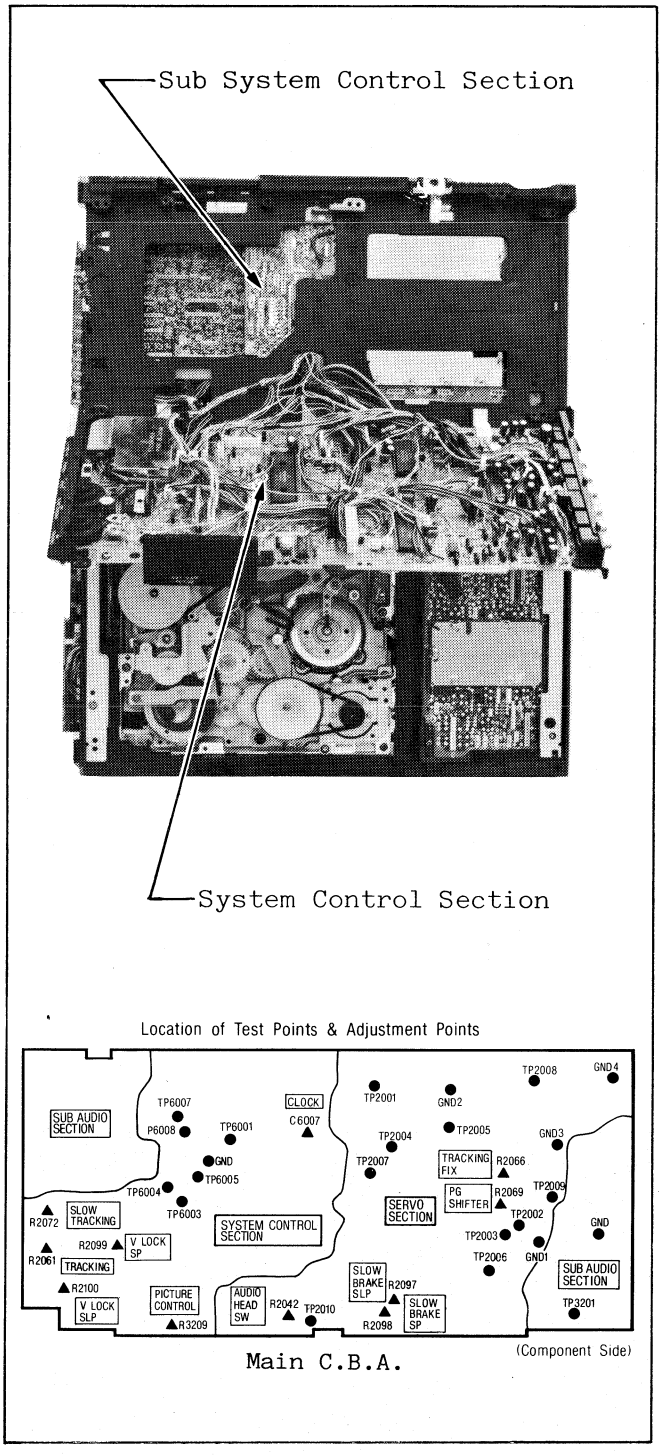



Fig. E33

## 2-4-1. CLOCK ADJUSTMENT

Test Point: TP6001
Adjustment: C6007 (CLOCK)

1. Connect the frequency counter with 10:1 Probe to TP6001 on the System Control Section.
2. Adjust the CLOCK (C6007) from the component side so that the frequency at TP6001 is 349.525 (+- 0.001) KHz.
3. Remove the frequency counter.

## 2-5. TV DEMODULATOR SECTION

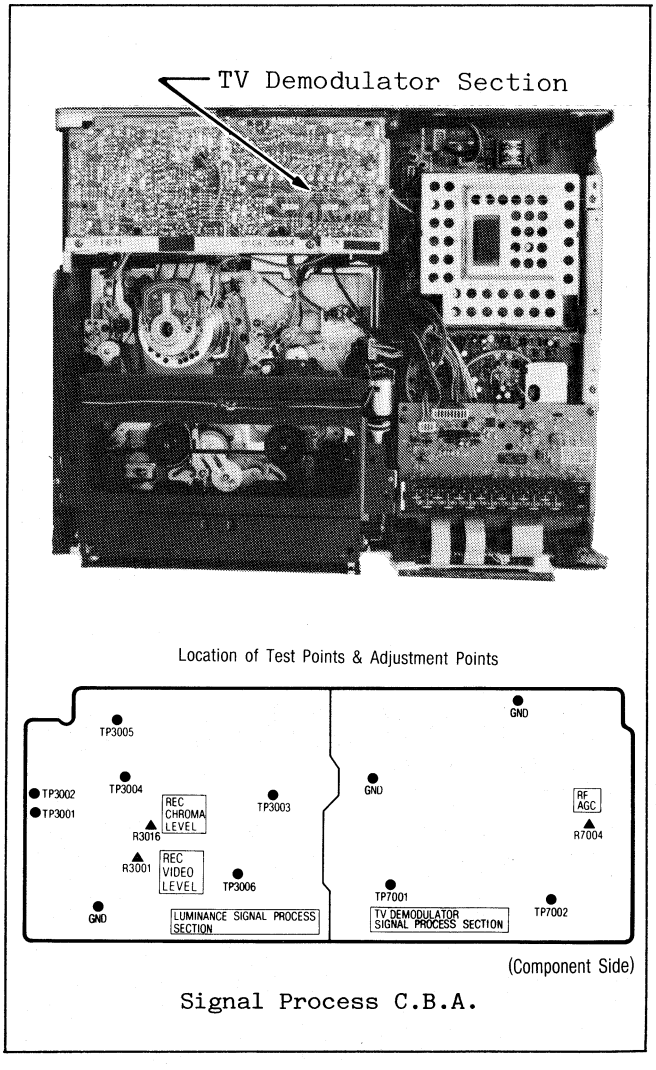
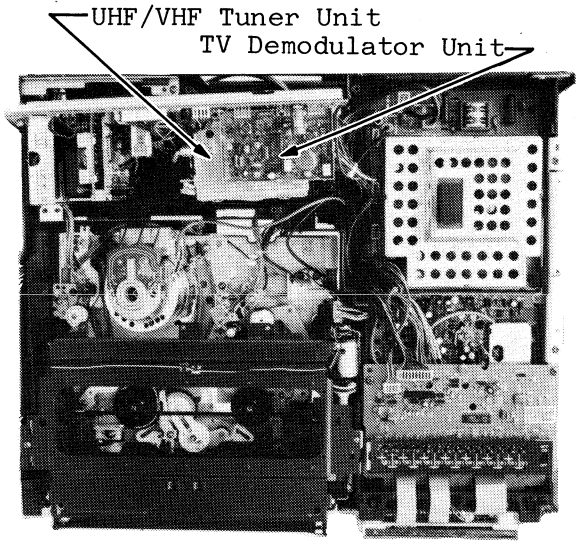
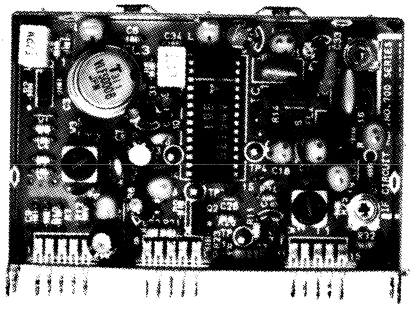


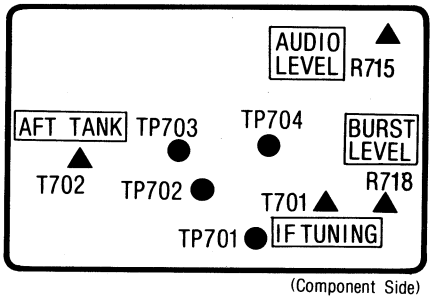

Fig. E34



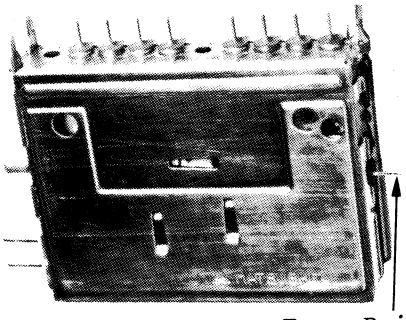

TV Demodulator Unit



Location of Test Points & Adjustment Points




UHF/VHF Tuner Unit



Tuner Test Point

Fig. E35

## 2-5-1. VIF OVERALL CONFIRMATION AND VCO ADJUSTMENT

Test Points : TP703, TP704
Adjustment : T701 (VCO)

(CAUTION)
Since the TV Demodulator Unit and UHF/VHF Tuner Unit have already been factory adjusted, do not try to adjust unless absolutely necessary.

A: Factory Adjustment

A-1. Overall Confirmation of VIF

1. Connect the VIF Sweep Generator/Trap Adjuster and Monitor Scope as shown below.

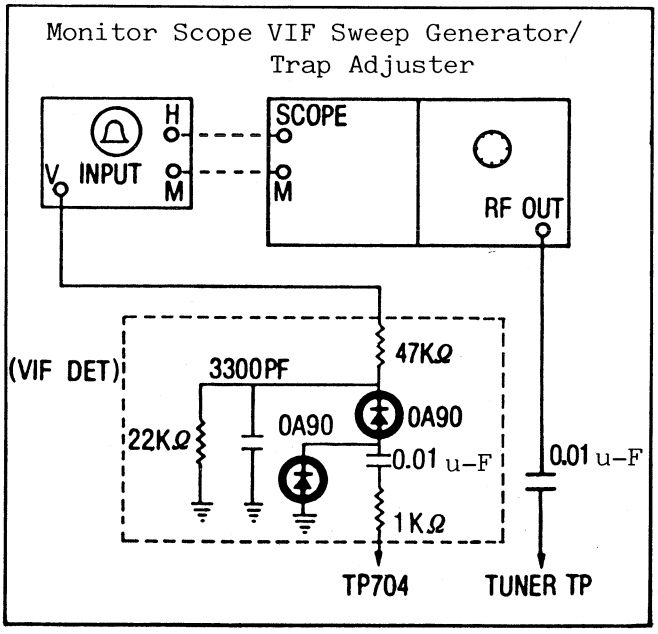



Fig. E36

2. Connect the output of the VIF Sweep Generator to tuner test point on the UHF/VHF Tuner Unit.
3. Connect the V Input of the Monitor Scope to TP704 on the TV Demodulator Unit through VIF Detector.
4. Select Channel 13.
5. Set the AFT switch to "OFF" position.
6. Connect the DC Power Supply Unit to TP701 on the TV Demodulator Unit and set at OV DC as a starting point.
7. Connect TP702 and GND with a 3.3 u-F /25V capacitor.
8. Adjust the VCO (T701) so that the beat portion is at center as shown in Fig. E37.

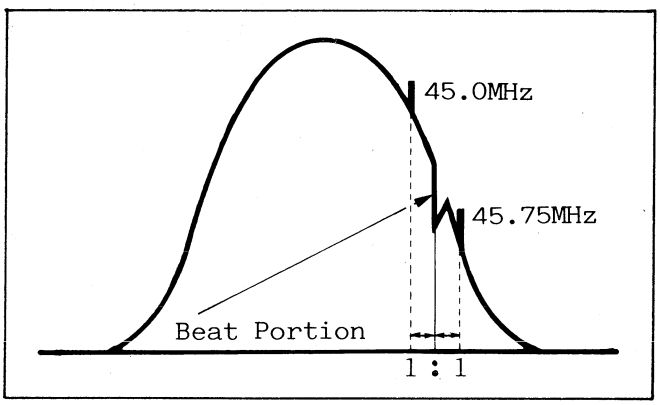



Fig. E37

9. Set the DC Power supply voltage on TP701 so that the waveform level is maximum.
10. Adjust the output of the VIF Sweep Generator so that the A level is 1.0Vp-p.

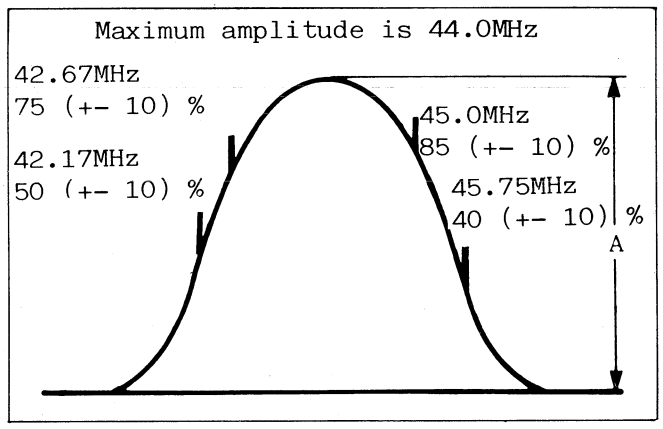



Fig. E38

11. Increase the VIF Sweep Generator output by 25dB.
12. Adjust the output of the DC Power Supply Unit so that the A portion becomes 1.0Vp-p.
13. Confirm that the Sweep output. waveform is as shown in Fig. E38.
14. Adjust the VCO (T701) so that the Beat portion is at 45.75MHz marker as shown below.

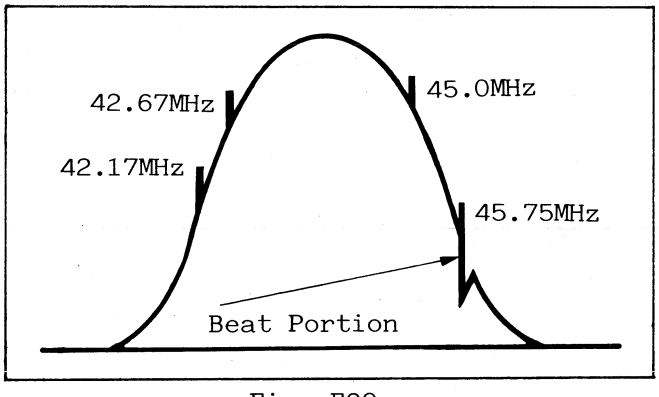



Fig. E39

15. Remove the capacitor.

A-2. VCO Adjustment

1. Adjust DC Power Supply Unit to 0V DC.
2. Connect a 3.3 u-F/25V capacitor between TP702 and GND.
3. Connect the Frequency Counter to TP703 on the TV Demodulator Unit through a Tuning Amp.

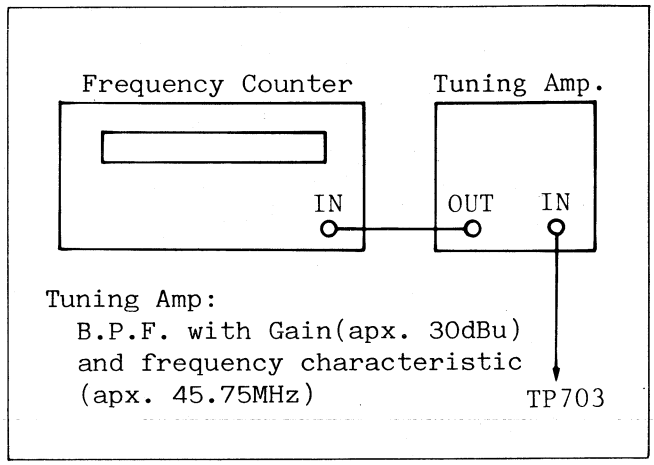



Fig. E40

4. Adjust the VCO (T701) so that the frequency is 45.75MHz (+- 0.02) MHz.
5. Remove the capacitor.

B. Field Adjustment

1. Supply the NTSC standard color bar signal to the RF Input on the rear panel and tune this signal.
2. Connect the scope to TP704 on the TV Demodulator Unit.
3. Adjust the VCO (T701) so that the waveform is as shown below.

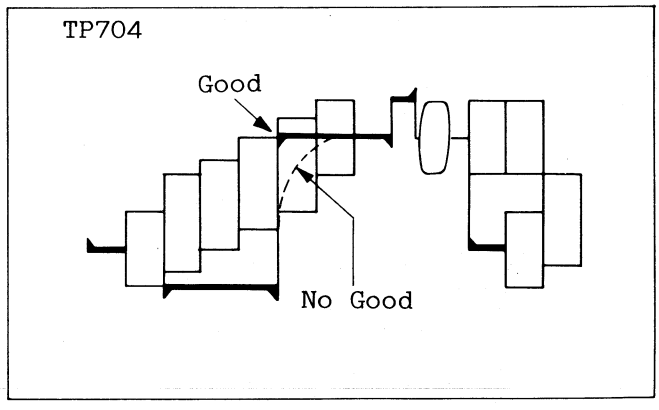



Fig. E41

## 2-5-2. AFT TANK ADJUSTMENT

Test Point: Tuner Test Point (TP)
Adjustment: T702 (AFT)

1. Tune in a local TV program on Channel 4.
2. Connect the frequency counter to tuner test point on the UHF/VHF Tuner Unit through a 10kΩ resistor and a 10PF capacitor.

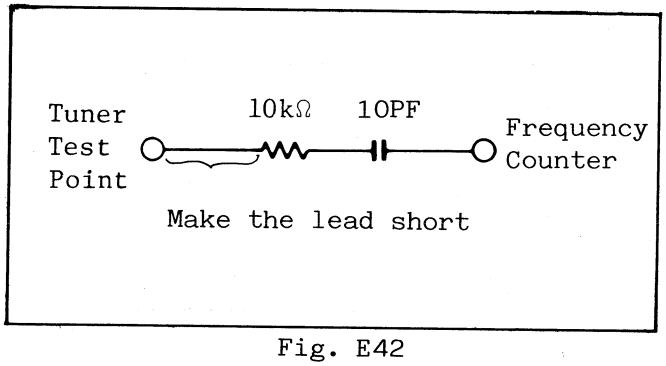



Fig. E42

3. Set the AFT switch on the Tuning Control Unit to "OFF".
4. Adjust the tuning VR on the front panel so that the frequency is 113.00 (+- 0.01) MHz.
5. Set the AFT switch on the tuning Control Unit to "ON".
6. Adjust the AFT (T702) so that the frequency is 113.00 (+- 0.005) MHz.
7. Remove the frequency counter.

## 2-5-3. BURST LEVEL ADJUSTMENT

Test Point : Pin 10 of TV Demodulator Unit
Adjustment : R718 (BURST LEVEL)

1. Supply the NTSC standard color bar signal to the RF Input on the rear panel and tune to this signal.
2. Connect the scope to Pin 10 of TV Demodulator Unit.
3. Confirm that the video level at Pin 10 of TV Demodulator Unit is 1.0 (+- 0.2) Vp-p.
4. Adjust the BURST LEVEL (R718) so that the burst level is 22 (+- 1) % of the video level.
5. Confirm that the sync level is more than 24% of video level.

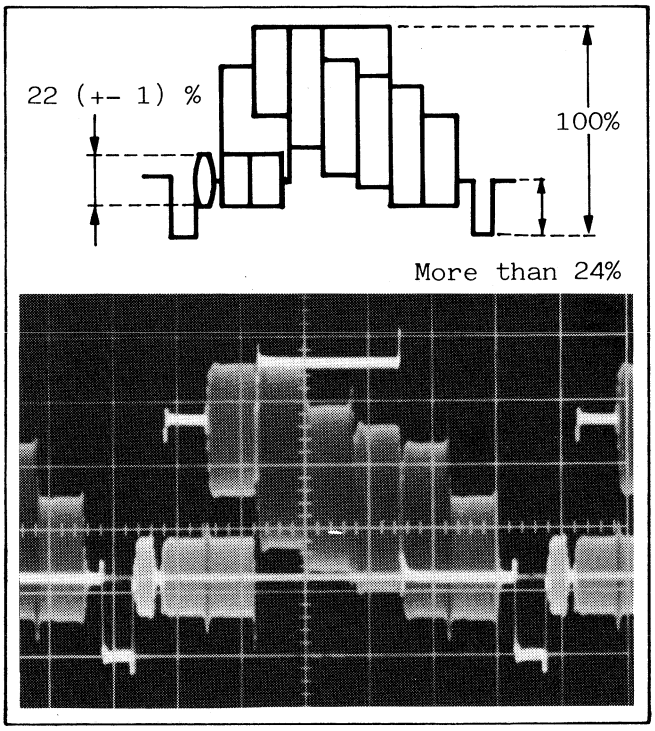



Fig. E43 Pin 10 of TV Demodulator Unit
0.2V/10 u-sec. div.

## 2-5-4. AUDIO LEVEL ADJUSTMENT

Test Point : Pin 15 of the TV Demodulator Unit
Adjustment : R715 (AUDIO LEVEL)

1. Supply TV RF signal with audio modulation of 400Hz at 30% to the RF Input on the rear panel.
2. Connect the scope between Pin 15 of the TV Demodulator Unit and GND.
3. Set the AFT switch on the Tuning Control Unit to "ON".
4. Adjust the AUDIO LEVEL (R715) so tha the level is 140 (+- 10)mVp-p.

## 2-5-5. RF AGC ADJUSTMENT

Test Point : TP7001
Adjustment : R7004 (RF AGC)

A: Factory Adjustment

1. Tune in a color bar signal (VHF).
2. Set the AFT switch on the Tuning Control meter Unit to "ON".
3. Set the input level of electric field to 63 (+- 1) dBu.
   (Using the Attenuator and Spectrum Analyzer)

4. Connect the scope to TP7001 on the Demodulator Signal Process Section.
5. Turn the RF AGC (R7004) on the Demodulator Signal Process Section fully counterclockwise from foil side.
6. Then slowly turn the RF AGC (R7004) till just before the voltage drops.
7. Change the input electric field from 63 dBu to 66 dBu.
8. Confirm that the voltage at TP7001 has dropped more than 1.0V.

B. Field Adjudtment

1. Supply a local TV Signal to the RF Input on the rear panel and tune to this signal.
2. Set the AFT switch on the Tuning Control Unit to "ON".
3. Connect the scope to pin 10 of TV Demodulator Unit and GND.
4. Adjust the RF AGC (R7004) so that the H-sync is Maximum and its shape can be observed clearly.

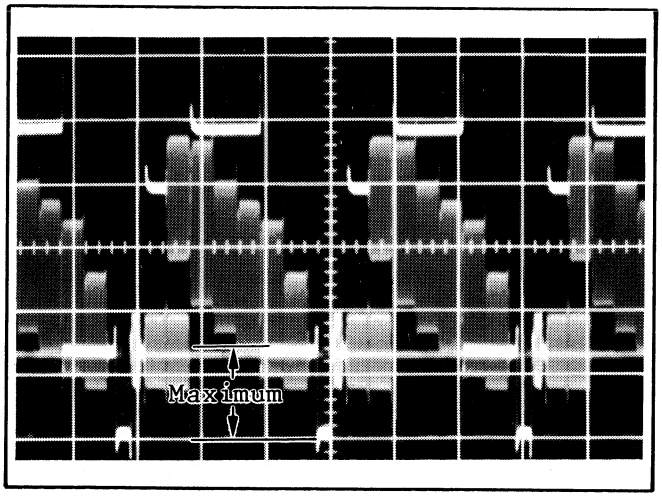
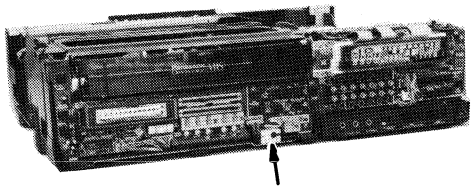



Fig. E44 Pin 10 of TV Demodulator Unit
0.2V/20 u-sec. div.

5. Confirm that the noise band and beat do not appear on the TV screen.

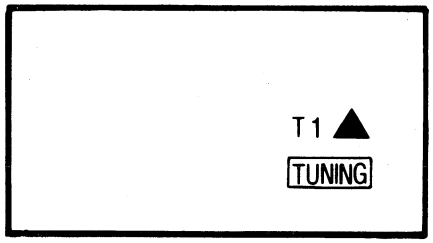
Note :
This procedure is just a simplified method. So use the factory Adjustment for a more accurate or interchangeable adjustment.

## 2-6. IR WIRELESS RECEIVING DETECTOR SECTION



IR Wireless Receiving
Detecor Unit

Location of Test Points & Adjustment Points




(Component Side)

IR Wireless Receiving Detector Unit

Fig. E45

## 2-6-1. TUNING ADJUSTMENT

Test Point : Pin 1 of P6026
Adjustment : T1 (TUNING)

1. First, place the deck so that the left side faces down. Hold the deck with your hand and then remove 2 red screws (A) and 2 screws (B), and remove the Front Frame Support Angle from the unit.

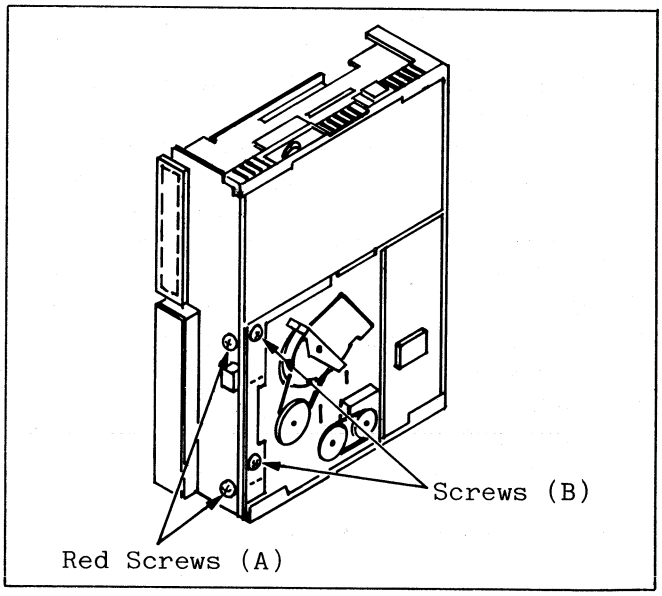



Fig. E46

2. Place the deck in the normal operating position. And then take out the IR Wireless Receiving Detector Unit from the Unit.
3. Place the IR Wireless Transmitter Unit and the Unit as shown below.

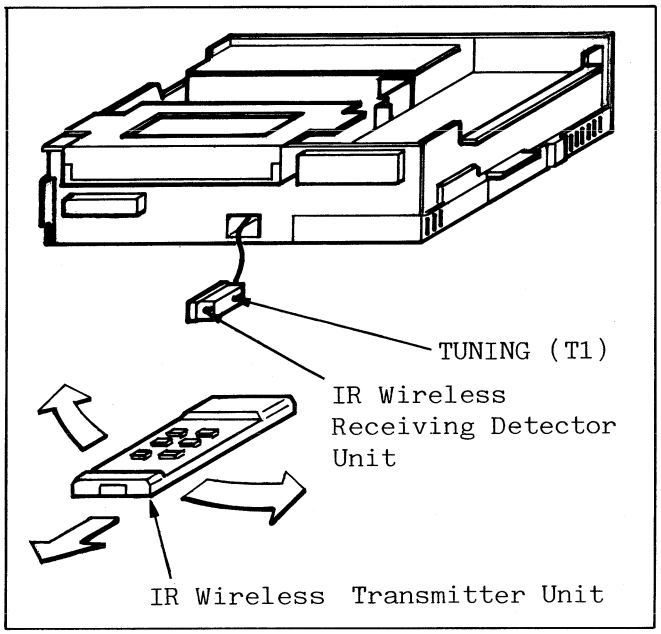



Fig. E47

4. Place the Unit in the stop mode.
5. Connect the scope to Pin 1 of P6026 on the Sub System Control Section.
6. Change the diretion of the IR Wireless Transmitter Unit gradually with pushing the stop button on the IR Wireless Transmitter Unit until the waveform on the scope is just begins to be disturbed as shown below.

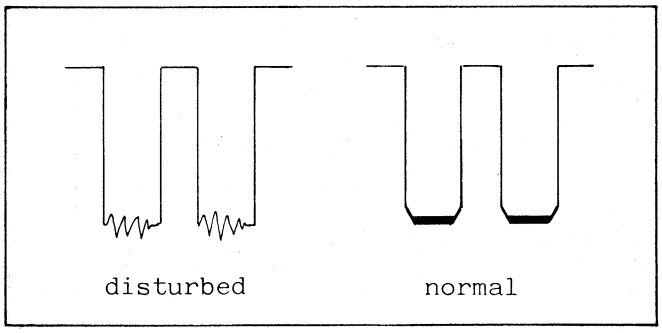
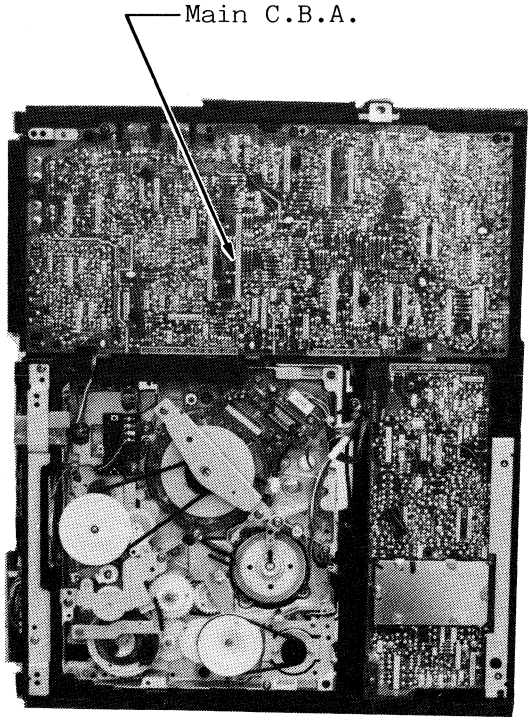


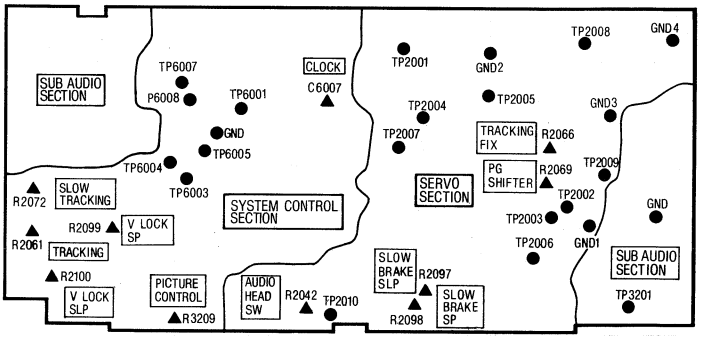

Fig. E48

7. Adjust the TUNING (T1) on the IR Wireless Receiving Detector Unit continuing the condition of item 6 so that the waveform at Pin 1 of P6026 is best (i.e. least disturbance possible).
8. Return the IR Wireless Receiving Detector Unit to the Unit.
9. Remove the scope.

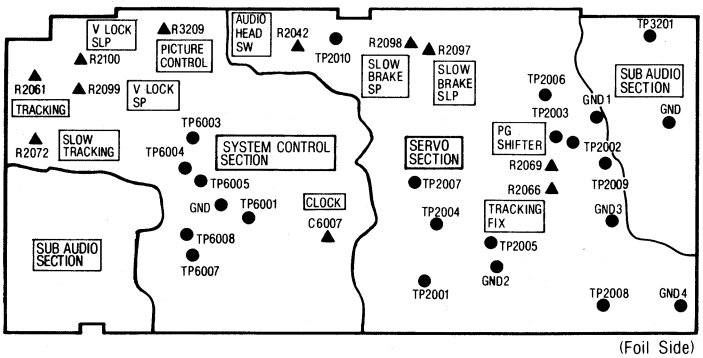
# MAIN C.B.A.

## (VEPS0251B1)



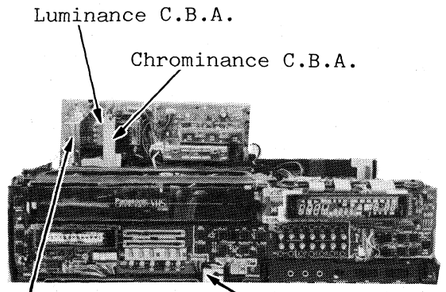

(Component Side)

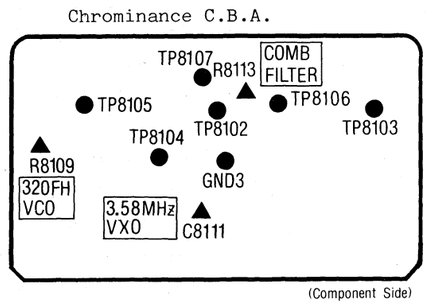


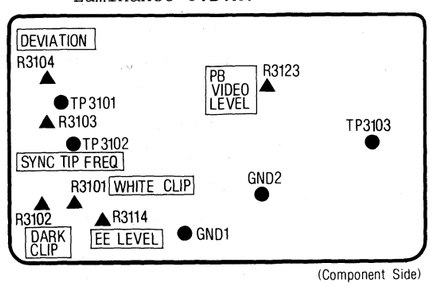

(Foil Side)

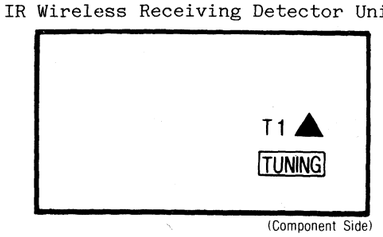
# Location of Test Points and Adjustment Points

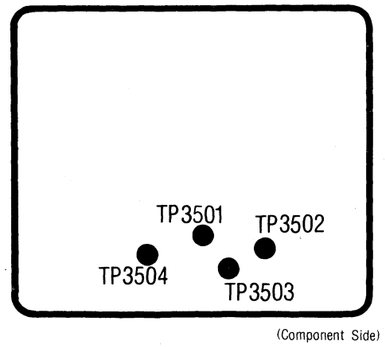
| Head Amp Unit | (VEPS0508B1) |
|---|---|
| Luminance C.B.A. | (VEPS0337A) |
| Chrominance C.B.A. | (VEPS0806A) |
| IR Wireless Receiving Detector Unit | (VEQS0276) |



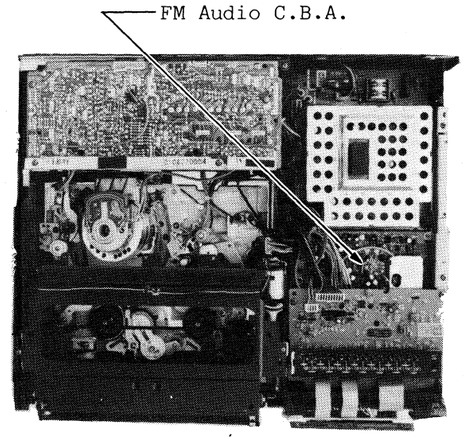



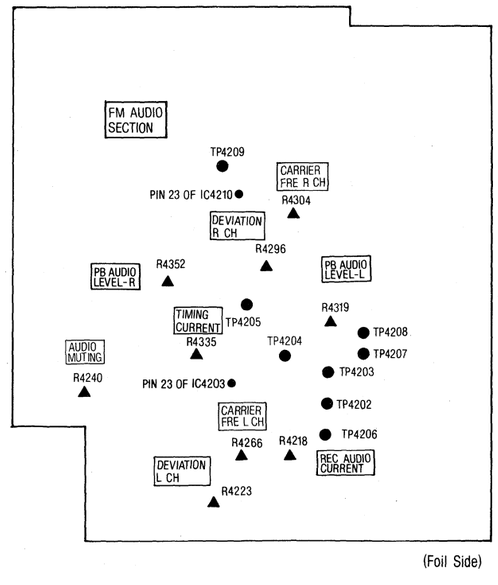



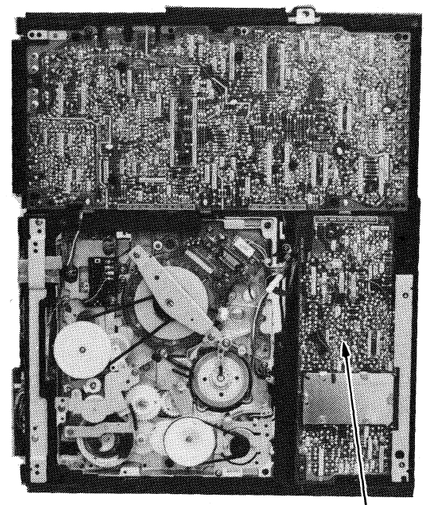



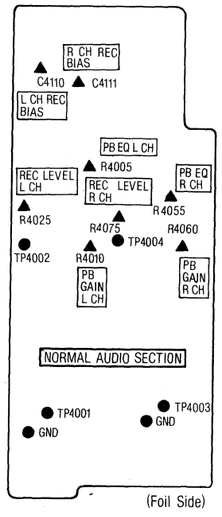




| FM Audio C.B.A. | Normal Audio C.B.A. |
|---|---|
| (VEPS0424B1) | (VEPS0422B1) |



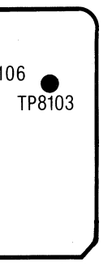



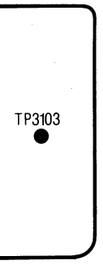

(Component Side)

# Location of Test Points and Adjustment Points

PS0508B1)
S0337A)
PS0806A)
QS0276)




(Component Side)

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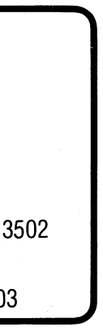
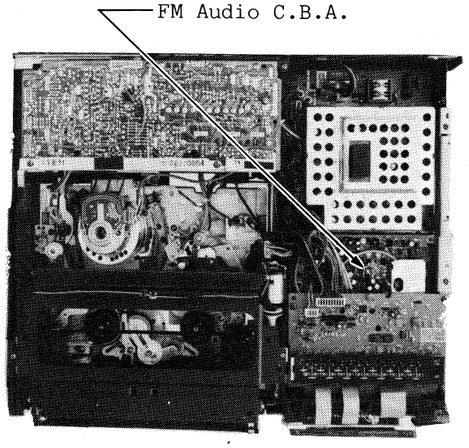
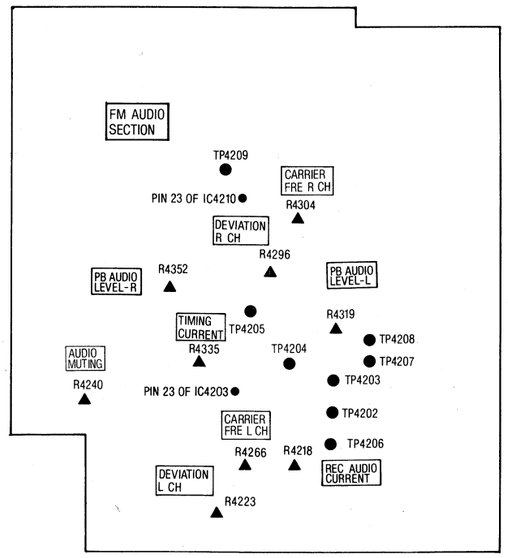



(Component Side)

## FM Audio C.B.A.

(VEPS0424B1)

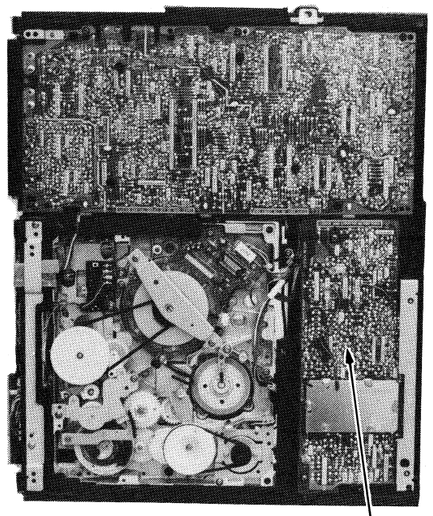


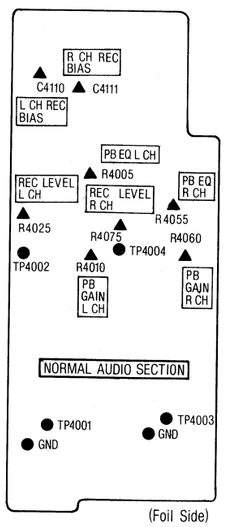




(Foil Side)

## Normal Audio C.B.A.

(VEPS0422B1)



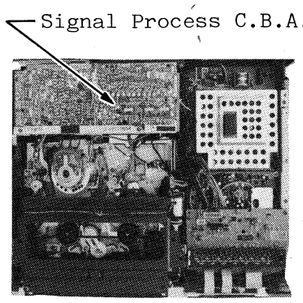



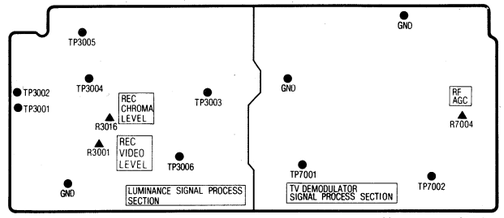

(Foil Side)

(Component Side)

## Signal Process C.B.A.

(VEPS0344E1)

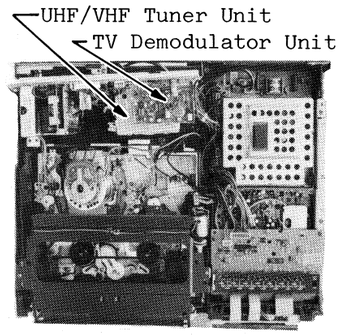


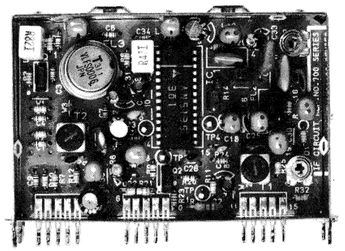

(Component Side)

**UHF/VHF Tuner Unit** (TNV56751F2R)

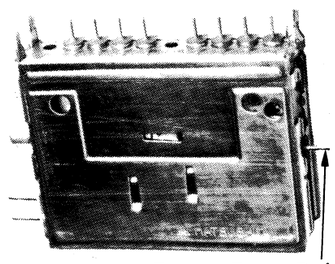
**TV Demodulator Unit** (VEQS0257)



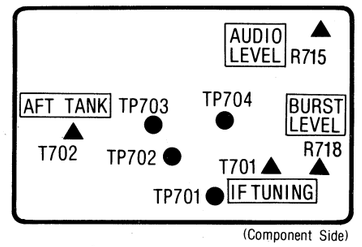

TV Demodulator Unit



UHF/VHF Tuner Unit




TV Demodulator C.B.A.




(Component Side)

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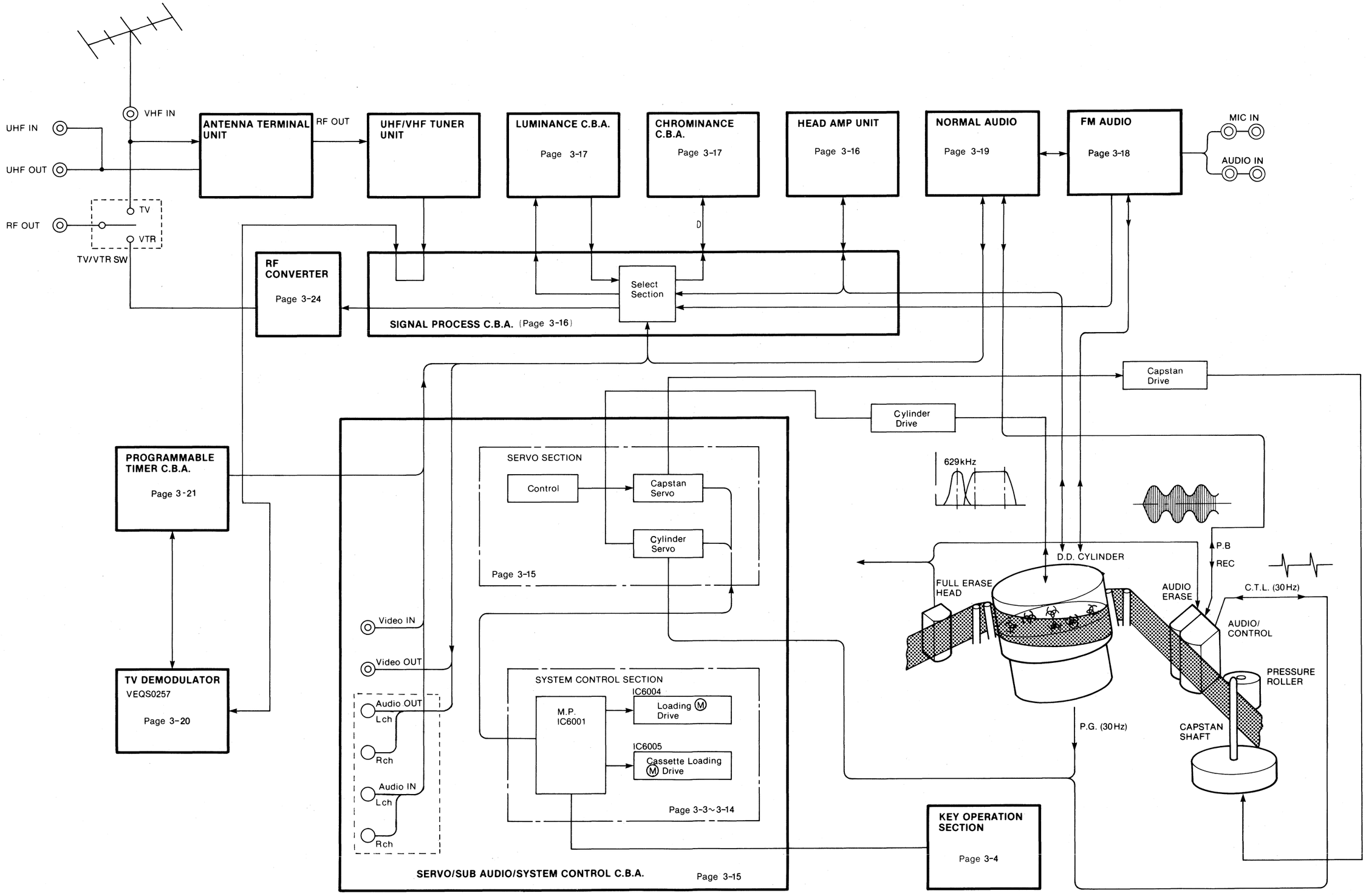
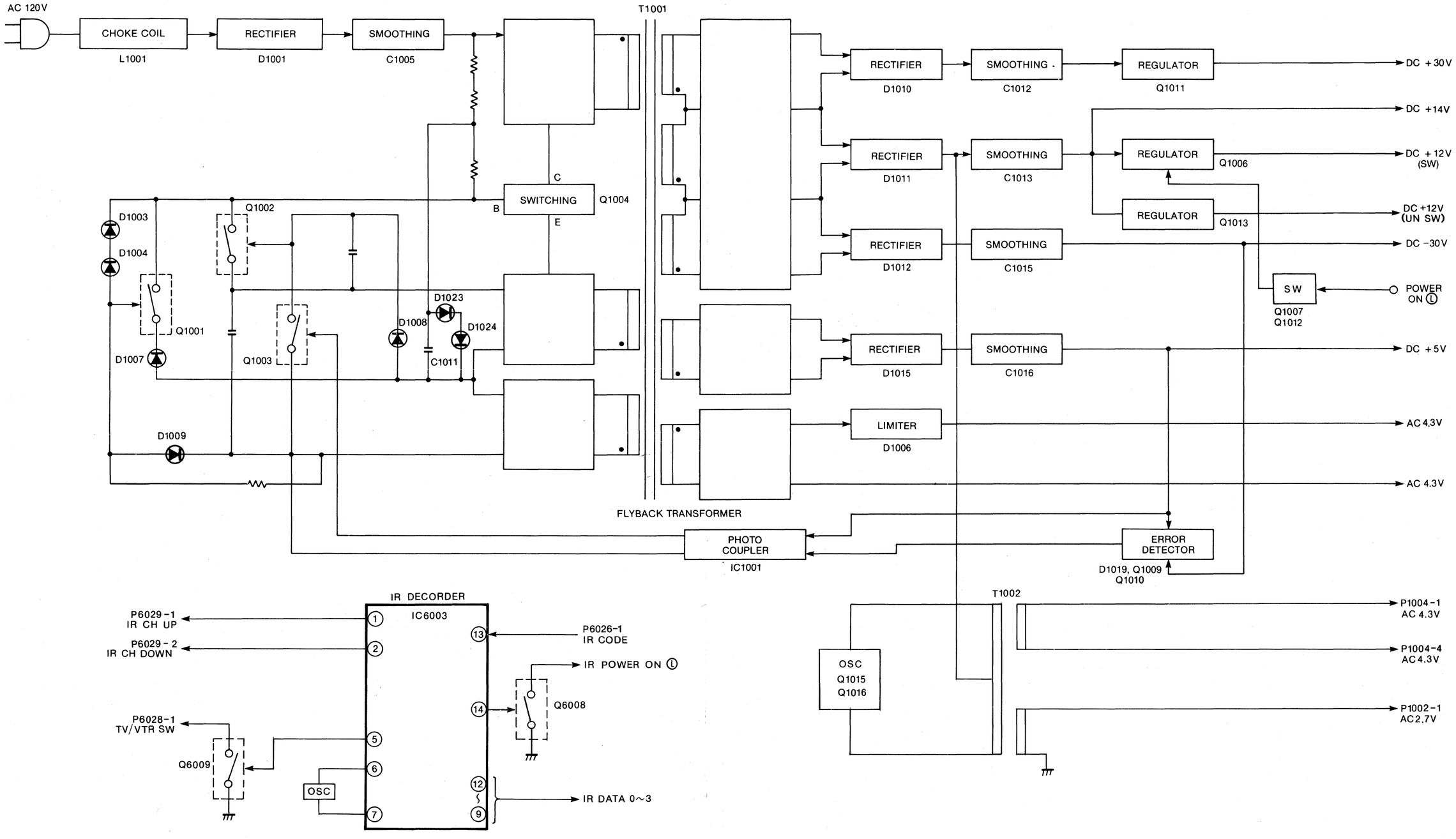
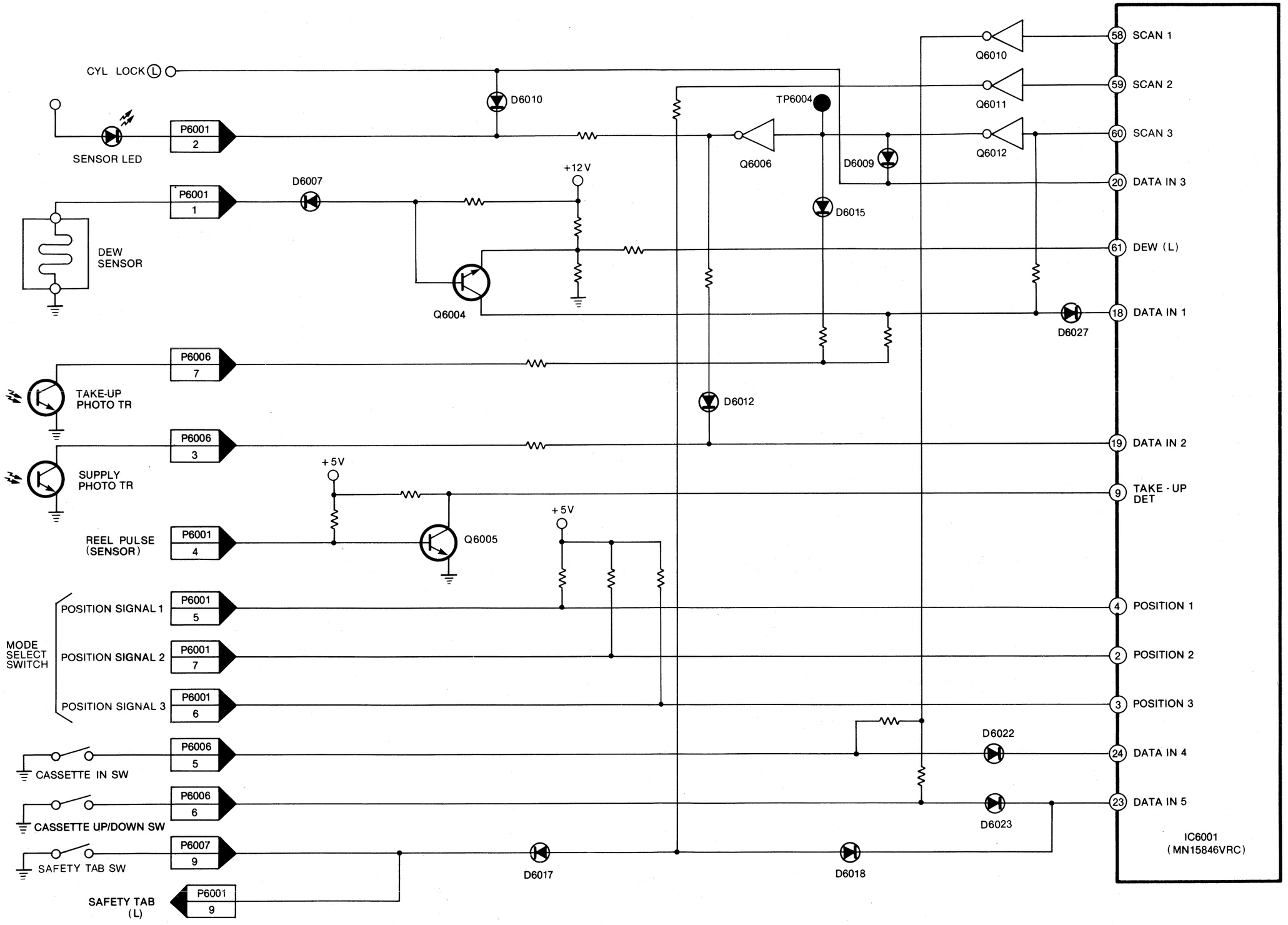
# OVERALL BLOCK DIAGRAM



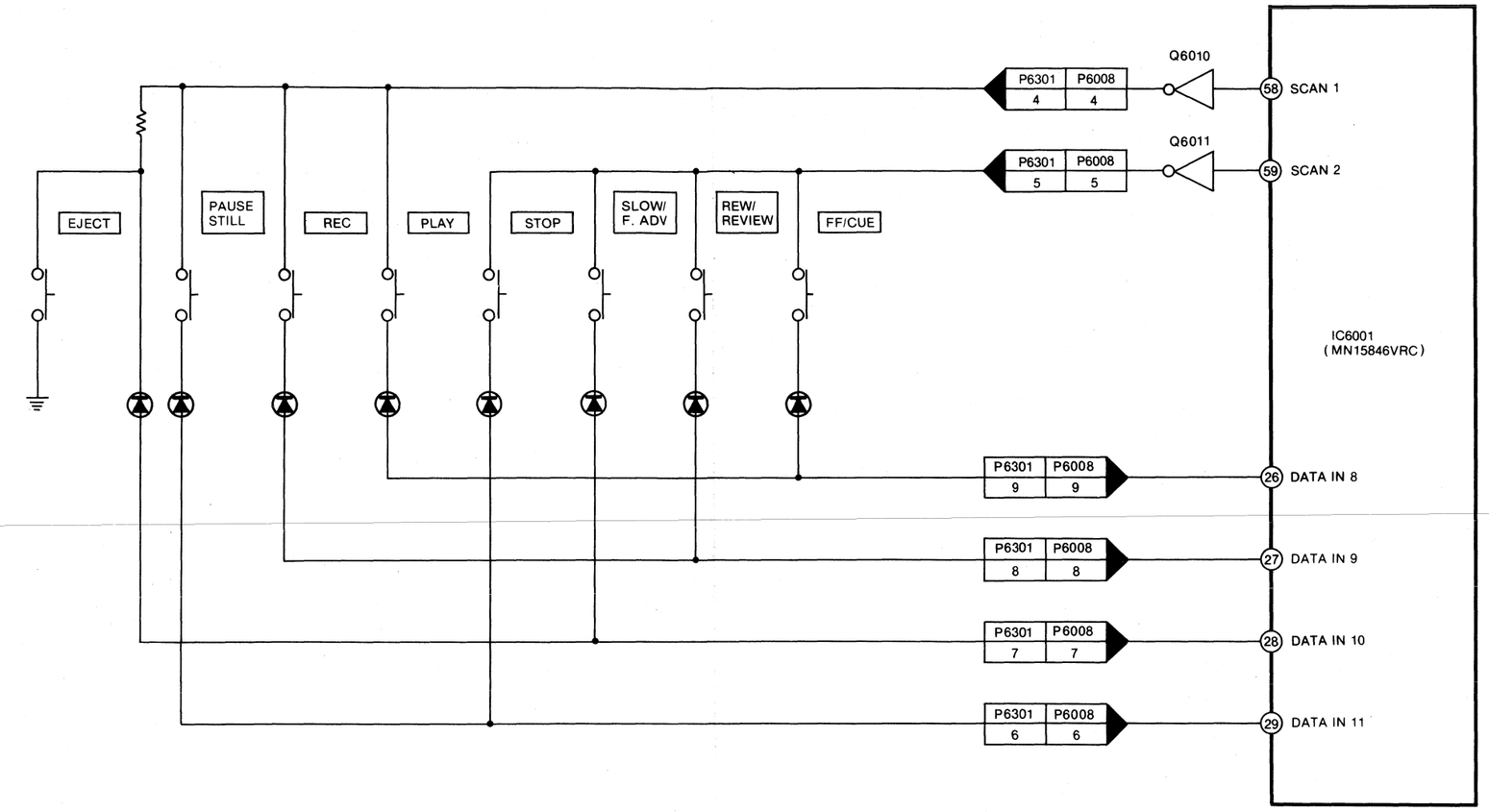
# POWER SUPPLY BLOCK DIAGRAM



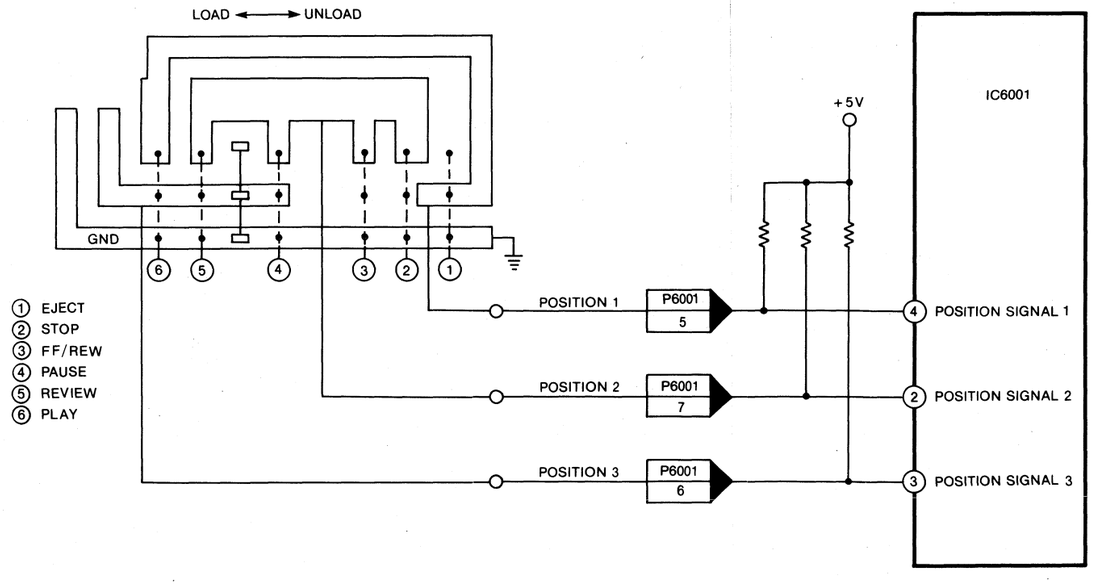
# SAFETY DEVICE BLOCK DIAGRAM (SYSTEM CONTROL)



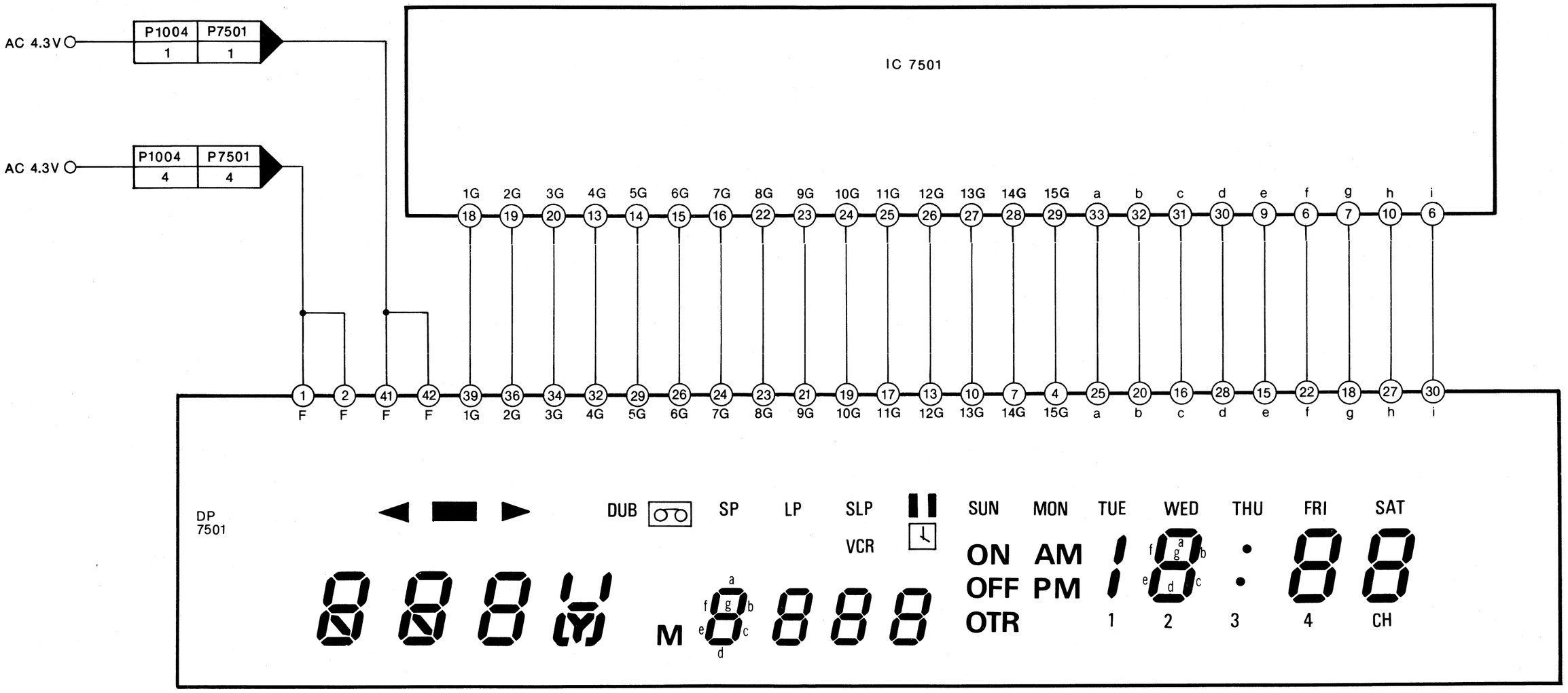
## KEY MATRIX BLOCK DIAGRAM (SYSTEM CONTROL)




## MODE SELECT SWITCH BLOCK DIAGRAM (SYSTEM CONTROL)



# **FIP DRIVE BLOCK DIAGRAM** (SYSTEM CONTROL)



# SERIAL DATA TRANSMISSION (SYSTEM CONTROL)

### 1. Data Transmission 1 (Operational Information)

| DATA NO. | OPERATION |
|---|---|
| (1) | "0" } TRANSMISSION CODE |
| (2) | "0" } |
| (3) | E-E ("0")/V-V ("1") |
| (4) | PAUSE/FLASH ("1") |
| (5) | } OPERATION INFORMATION CODE |
| (6) | |
| (7) | |
| (8) | |

**Data Transmission of Operational Information**

| DATA NO. (5) | (6) | (7) | (8) | INFORMATION | DATA NO. (5) | (6) | (7) | (8) | INFORMATION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | UNDER CUT | 1 | 0 | 0 | 0 | FF |
| 0 | 0 | 0 | 1 | A. DUB | 1 | 0 | 0 | 1 | REW |
| 0 | 0 | 1 | 0 | F. ADV | 1 | 0 | 1 | 0 | DEW |
| 0 | 0 | 1 | 1 | REVIEW | 1 | 0 | 1 | 1 | STOP |
| 0 | 1 | 0 | 0 | CUE | 1 | 1 | 0 | 0 | EJECT |
| 0 | 1 | 0 | 1 | PLAY | 1 | 1 | 0 | 1 | STOP |
| 0 | 1 | 1 | 0 | SLOW | 1 | 1 | 1 | 0 | ALL OFF |
| 0 | 1 | 1 | 1 | REC | 1 | 1 | 1 | 1 | POWER OFF |

**Data Transmission 1 (Operational Information)**

### 2. Data Transmission 2 (Counter Number Information)

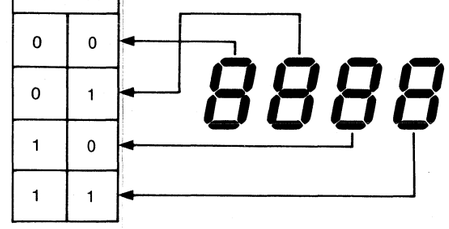
| DATA NO. | OPERATION |
|---|---|
| (1) | "1" } TRANSMISSION CODE |
| (2) | MEMORY ON ("1")/OFF ("0") |
| (3) | } COUNTER BLOCK NO. |
| (4) | |
| (5) | } COUNTER NUMBER INFORMATION |
| (6) | |
| (7) | |
| (8) | |

**Data Transmission of Counter Number Information**

| DATA NO. (5) | (6) | (7) | (8) | INFORMATION | DATA NO. (5) | (6) | (7) | (8) | INFORMATION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 5 |
| 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 6 |
| 0 | 0 | 1 | 0 | 2 | 0 | 1 | 1 | 1 | 7 |
| 0 | 0 | 1 | 1 | 3 | 1 | 0 | 0 | 0 | 8 |
| 0 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 1 | 9 |

**Data Transmission 2 (Counter Number Information)**

| DATA NO. (3) | (4) |
|---|---|
| 0 | 0 |
| 0 | 1 |
| 1 | 0 |
| 1 | 1 |




**Counter Position Code**

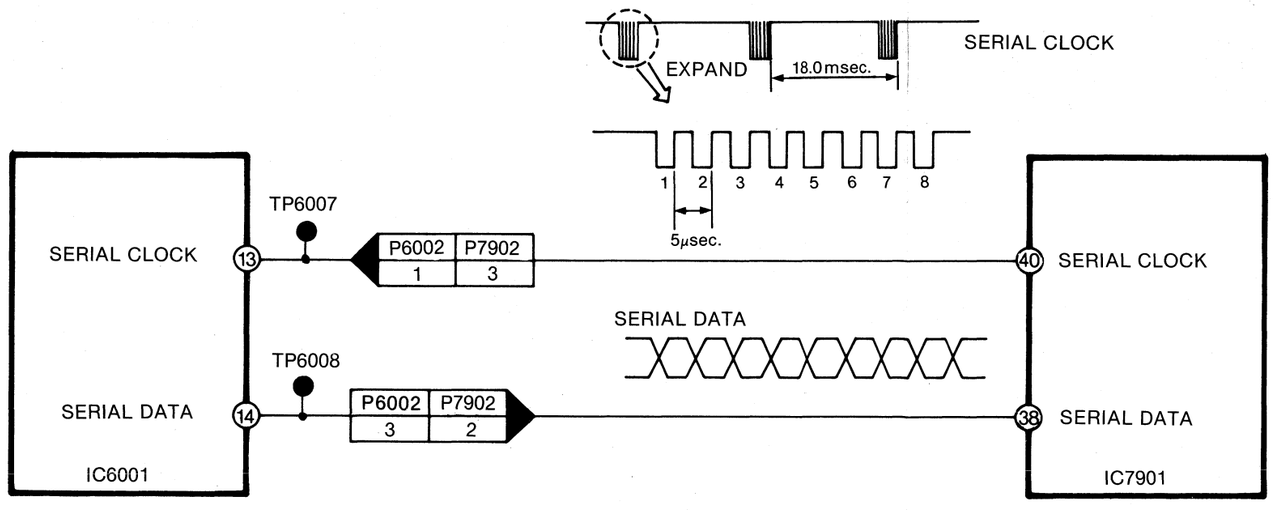
### 3. Data Transmission 3 (Tape Speed Information)

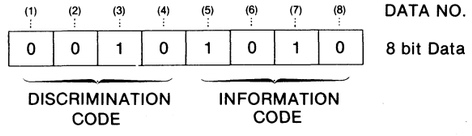
| DATA NO. | OPERATION |
|---|---|
| (1) | "1" } TRANSMISSION CODE |
| (2) | "0" } |
| (3) | "0" |
| (4) | MEMORY ("1")/ERASE ("0") |
| (5) | } TAPE SPEED DATA INFORMATION CODE |
| (6) | |
| (7) | |
| (8) | |

**Data Transmission of Tape Speed Data Information**

| DATA NO. (5) | (6) | (7) | (8) | INFORMATION |
|---|---|---|---|---|
| 1 | 1 | 0 | 0 | SP |
| 1 | 1 | 0 | 1 | LP |
| 1 | 1 | 1 | 0 | SLP |

**Data Transmission 3 (Tape Speed Information)**




**8 bit Information Data**

# MICROPROCESSOR (IC6001: MN15846VRC) I/O CHART

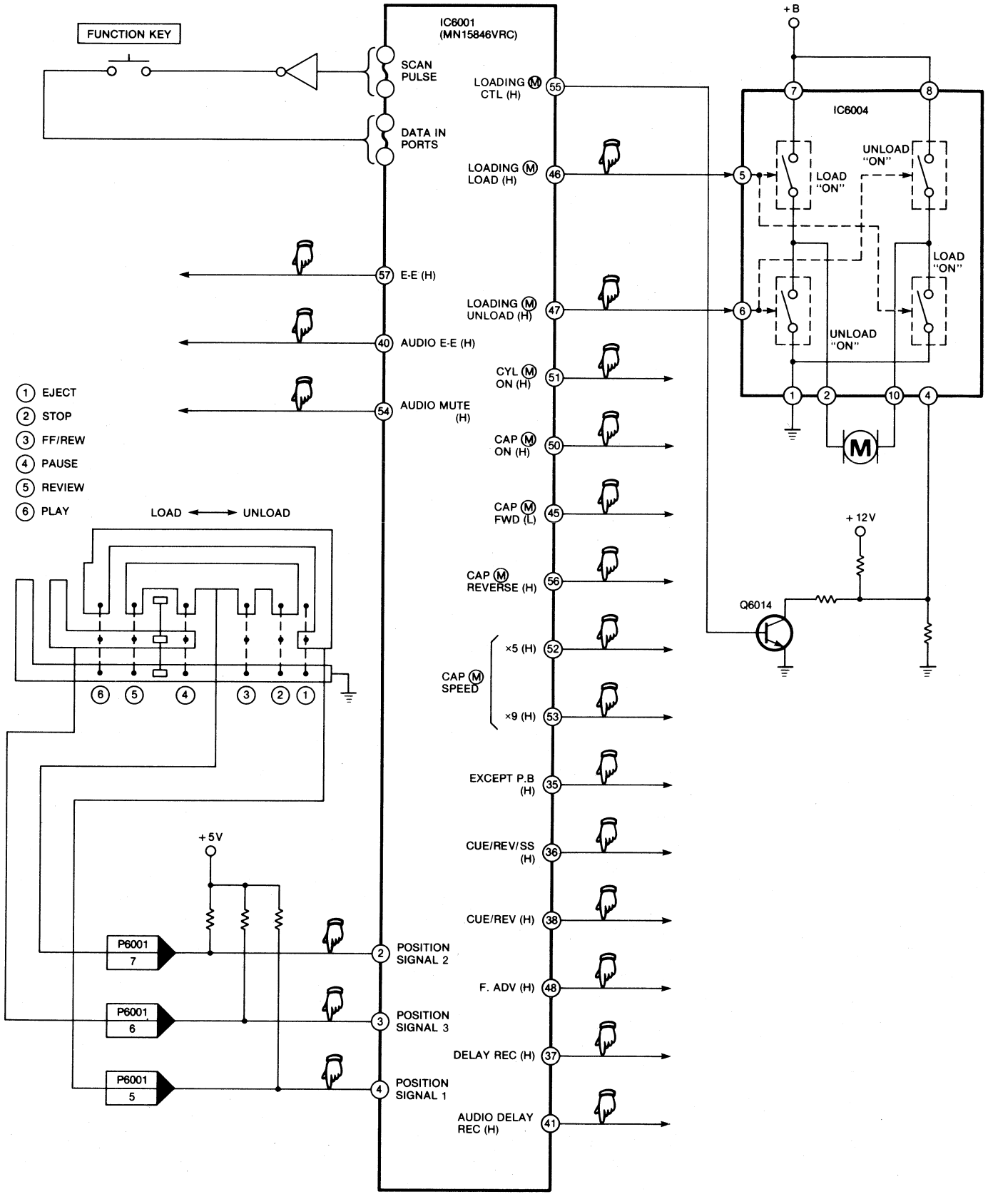
| PIN | I/O | NAME/OPERATION | | |
|---|---|---|---|---|
| 1 | — | GND | | |
| 2 | I | POSITION SIGNAL 2 | | |
| 3 | I | POSITION SIGNAL 3 | | |
| 4 | I | POSITION SIGNAL 1 | | |
| 5 | — | GND | | |
| 6 | I | TIMER SET (H) | | |
| 7 | I | TIMER REC (H) | | |
| 8 | I | GND | | |
| 9 | I | REEL SENSOR | | |
| 10 | I | CLOCK (349kHz) | | |
| 11 | I | SIRQ | | |
| 12 | I | IRQ | | |
| 13 | I | SERIAL CLOCK | | |
| 14 | O | SERIAL DATA | | |
| 15 | I | SBI | | |
| 16 | I | RESET (L) | | |
| 17 | I | V REF (1) | | |
| 18 | I | DATA IN 1 | (H)/(L) | OPERATION |
| | | | (H) | TAKE UP PHOTO TR |
| | | | (M) | DEW SENSOR |
| 19 | I | DATA IN 2 | (H)/(L) | OPERATION |
| | | | (H) | SUPPLY PHOTO TR |
| | | | (M) | REMOTE PAUSE |
| 20 | I | DATA IN 3 | (H)/(L) | OPERATION |
| | | | (L) | CYL LOCK |
| 21 | I | V REF | | |
| 22 | — | GND | | |
| 23 | I | DATA IN 5 | (H)/(L) | OPERATION |
| | | | (H) | SAFETY TAB SW |
| | | | (M) | CASSETTE UP/DOWN SW |
| 24 | I | DATA IN 6 | (H)/(L) | OPERATION |
| | | | (H) | SLP |
| | | | (L) | CASSETTE IN SW |
| 25 | I | DATA IN 7 | (H)/(L) | OPERATION |
| | | | (H) | LP/SLP |
| 26 | I | DATA IN 8 | SCAN PULSE | OPERATION |
| | | | SCAN 1 | PLAY KEY |
| | | | SCAN 2 | FF KEY |
| 27 | I | DATA IN 9 | SCAN PULSE | OPERATION |
| | | | SCAN 1 | REC KEY |
| | | | SCAN 2 | REW KEY |
| 28 | I | DATA IN 10 | SCAN PULSE | OPERATION |
| | | | SCAN 1 | EJECT KEY |
| | | | SCAN 2 | SLOW KEY |

| PIN | I/O | NAME/OPERATION | | |
|---|---|---|---|---|
| 29 | I | DATA IN 11 | SCAN PULSE | OPERATION |
| | | | SCAN 1 | PAUSE KEY |
| | | | SCAN 2 | STOP KEY |
| 30 | I | IR REMOTE CONTROLLER DATA (1) | | |
| 31 | I | IR REMOTE CONTROLLER DATA (2) | | |
| 32 | I | IR REMOTE CONTROLLER DATA (3) | | |
| 33 | I | IR REMOTE CONTROLLER DATA (4) | | |
| 34 | O | POWER ON (L) | | |
| 35 | O | EXCEPT PLAY (H) | | |
| 36 | O | CUE/REVIEW/SLOW/STILL (H) | | |
| 37 | O | DELAY REC (H) | | |
| 38 | O | CUE/REVIEW (H) | | |
| 39 | O | LP CUE/REV (L) | | |
| 40 | O | AUDIO EE (H) | | |
| 41 | O | AUDIO DELAY REC (H) | | |
| 42 | O | CASSETTE LOADING MOTOR LOAD (H) | | |
| 43 | O | CASSETTE LOADING MOTOR UNLOAD (H) | | |
| 44 | O | SP MEMORY (H) | | |
| 45 | O | CAP MOTOR FORWARD (L) | | |
| 46 | O | LOADING MOTOR LOAD (H) | | |
| 47 | O | LOADING MOTOR UNLOAD (H) | | |
| 48 | O | F. ADV (H) | | |
| 49 | O | SPEED MEMORY (L) | | |
| 50 | O | CAP MOTOR ON (H) | | |
| 51 | O | CYL MOTOR ON (H) | | |
| 52 | O | CAP SPEED DATA X5 (H) | | |
| 53 | O | CAP SPEED DATA X9 (H) | | |
| 54 | O | AUDIO MUTE (H) | | |
| 55 | O | LOADING MOTOR SPEED CONTROL | | |
| 56 | O | CAP REVERSE (H) | | |
| 57 | O | EE (H) | | |
| 58 | O | SCAN 1 | | |
| 59 | O | SCAN 2 | | |
| 60 | O | SCAN 3/SENSOR LED | | |
| 61 | I | DEW (L) | | |
| 62 | I | OSC 1 | | |
| 63 | I | OSC 2 | | |
| 64 | I | VDD | | |

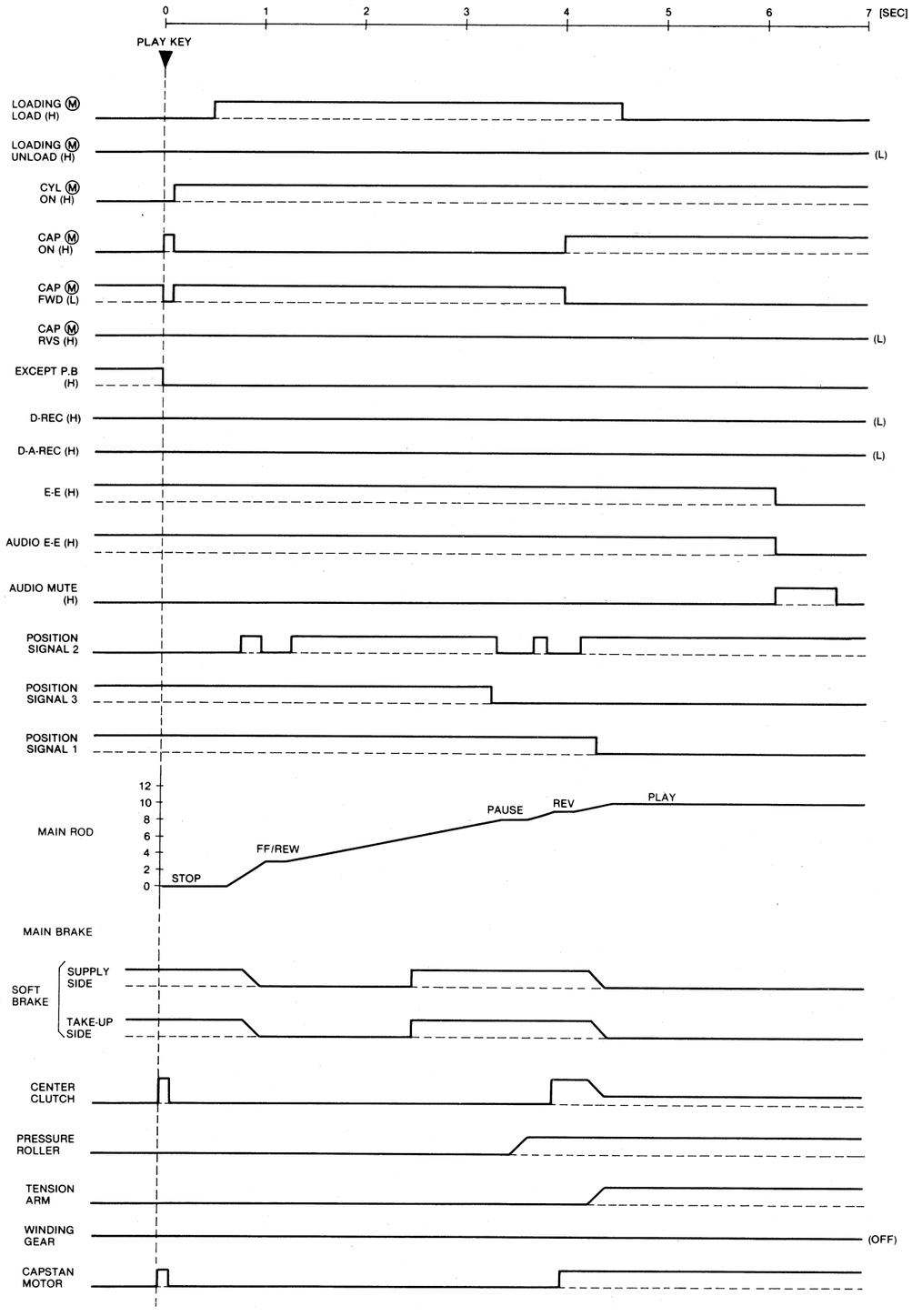
# IC7501 (UPD7538C-02) I/O CHART

| PIN | I/O | NAME/OPERATION |
|---|---|---|
| 1 | I | RESET |
| 2 | I | OSC 1 |
| 3 | I | OSC 2 |
| 4 | I | V PRE |
| 5 | I | V LOAD |
| 6 | O | SEGMENT i |
| 7 | O | SEGMENT g |
| 8 | O | SEGMENT f |
| 9 | O | SEGMENT e |
| 10 | O | SEGMENT h |
| 11 | O | TIME REC (H) |
| 12 | O | TIMER SET (H) |
| 13 | O | GRID 4G |
| 14 | O | GRID 5G |
| 15 | O | GRID 6G |
| 16 | O | GRID 7G |
| 17 | I | DATA IN / GRID SIGNAL / OPERATION |
| | | GRID 1G — TV/VCR SW |
| | | GRID 2G — TIMER SET KEY |
| | | GRID 6G — TIMER SELECT KEY |
| | | GRID 7G — SAFETY TAB SW |
| | | GRID 9G — CH DOWN |
| | | GRID 10G — TIMER MODE KEY |
| | | GRID 11G — OTR KEY |
| | | GRID 13G — CH UP |
| | | GRID 14G — RETURN KEY |
| | | GRID 15G — TIMER ON/OFF KEY |
| 18 | O | GRID 1G |
| 19 | O | GRID 2G |
| 20 | O | GRID 3G |
| 21 | I | VDD |
| 22 | O | GRID 8G |
| 23 | O | GRID 9G |
| 24 | O | GRID 10G |
| 25 | O | GRID 11G |
| 26 | O | GRID 12G |
| 27 | O | GRID 13G |
| 28 | O | GRID 14G |
| 29 | O | GRID 15G |
| 30 | O | SEGMENT d |
| 31 | O | SEGMENT c |
| 32 | O | SEGMENT b |
| 33 | O | SEGMENT a |
| 34 | O | TV/VCR |
| 35 | O | CH DOWN |
| 36 | O | CH UP |
| 37 | O | CH LOCK (L) |
| 38 | I | SERIAL DATA |
| 39 | — | NOT USED |
| 40 | O | SERIAL CLOCK |
| 41 | I | 349kHz |
| 42 | — | GND |

# MODE BY MODE BLOCK DIAGRAM (SYSTEM CONTROL)

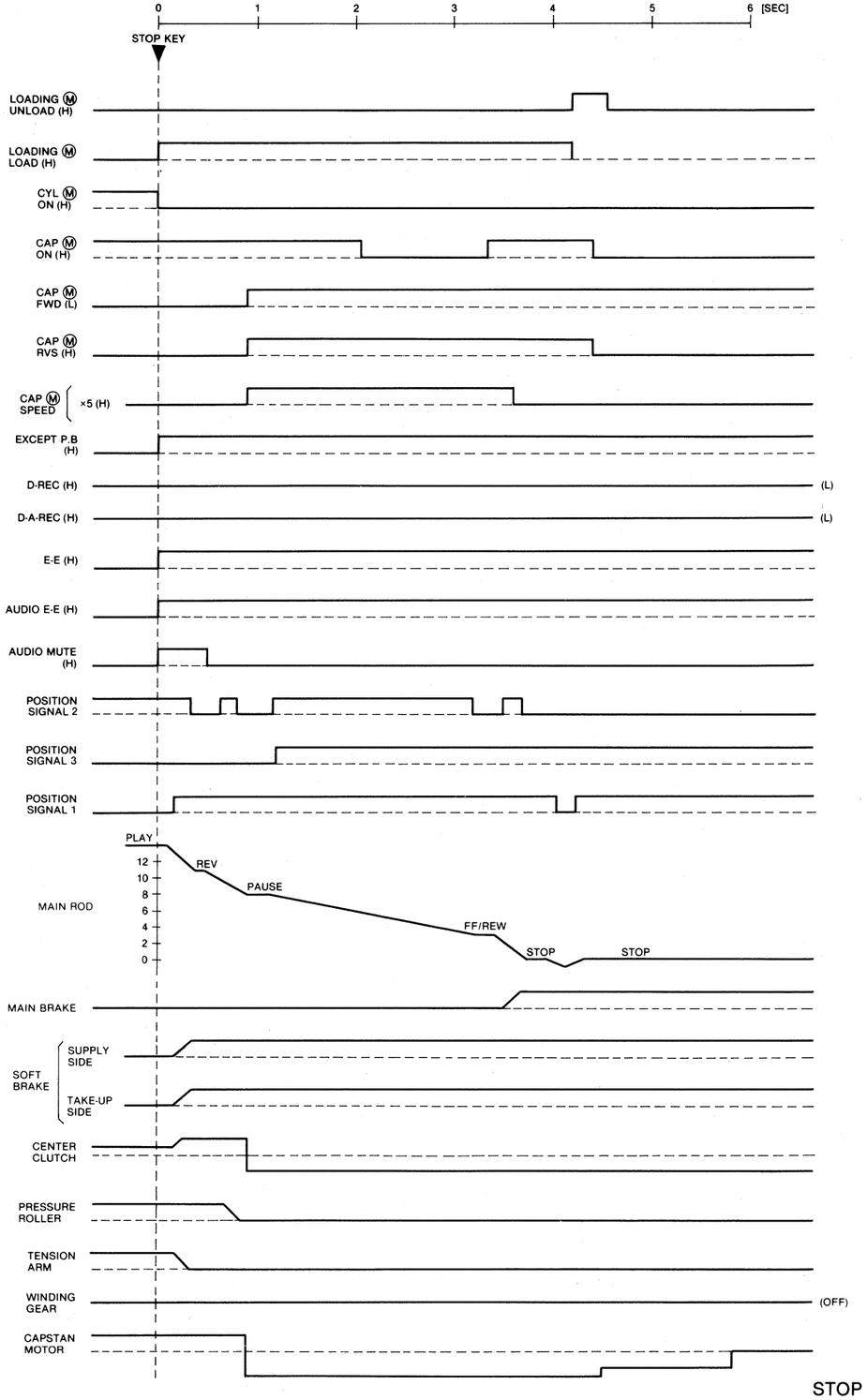


## STOP → PLAY MODE TIMING CHART

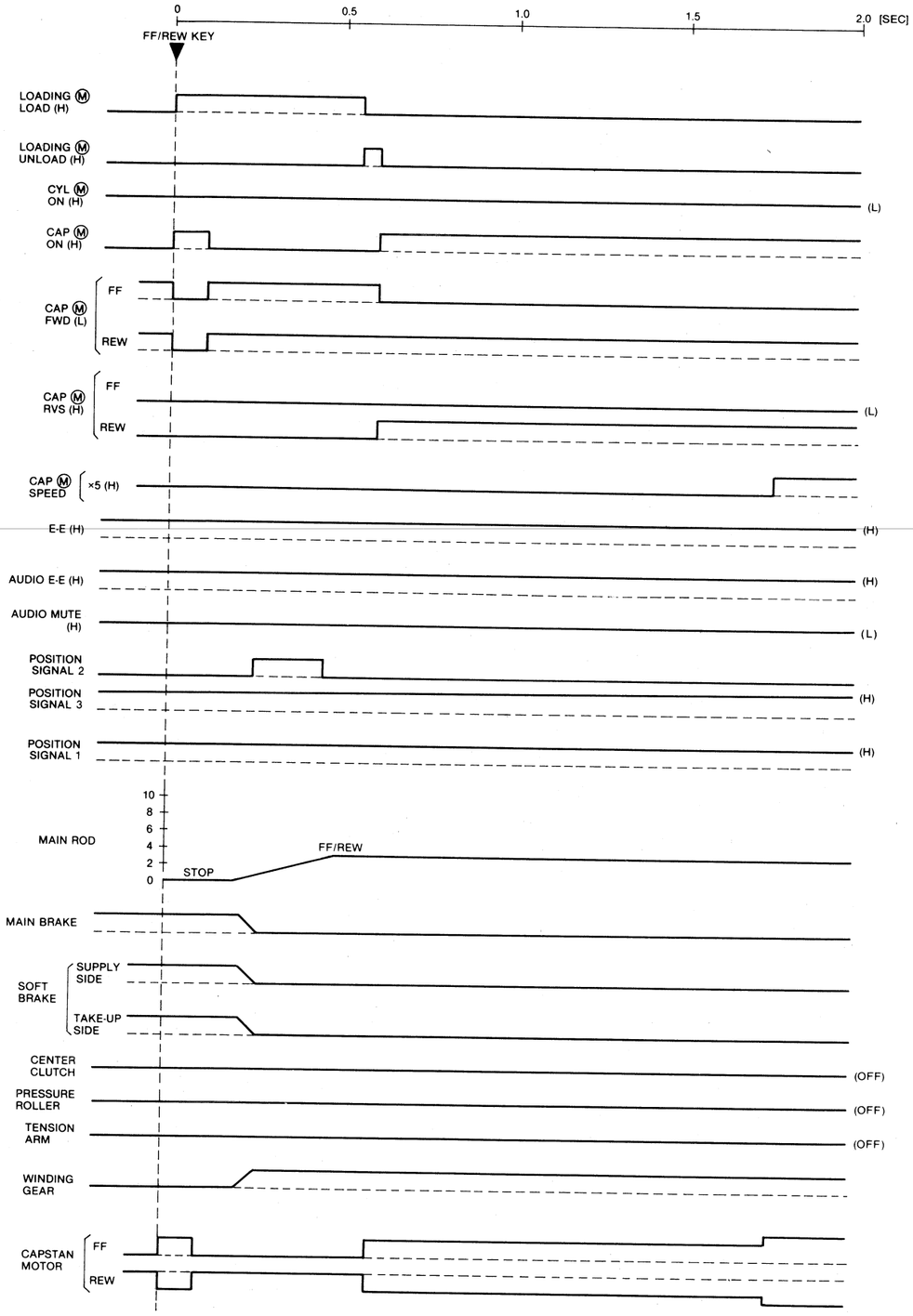




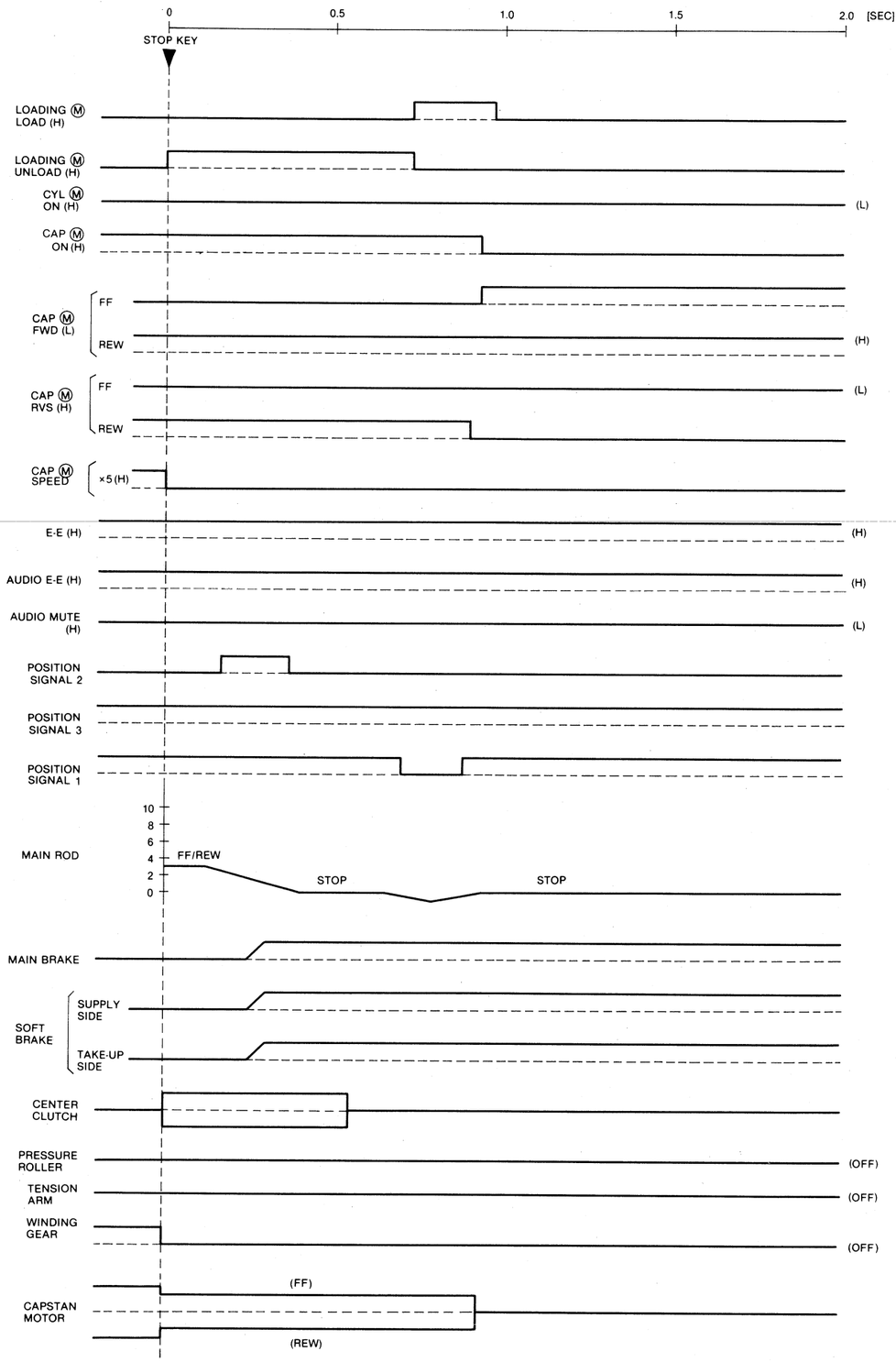

## PLAY → STOP MODE TIMING CHART



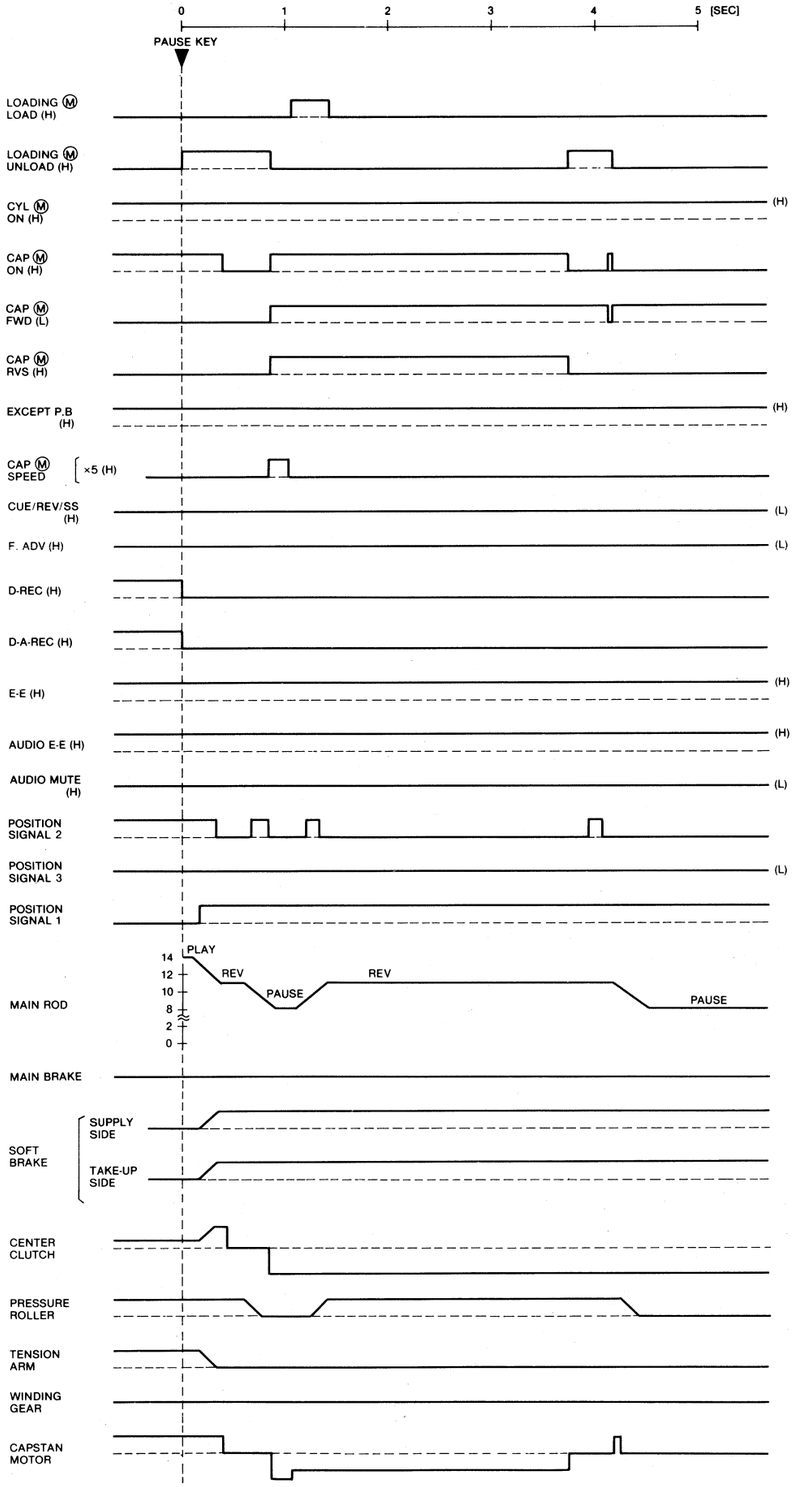
## STOP → FF/REW MODE TIMING CHART




## FF/REW → STOP MODE TIMING CHART



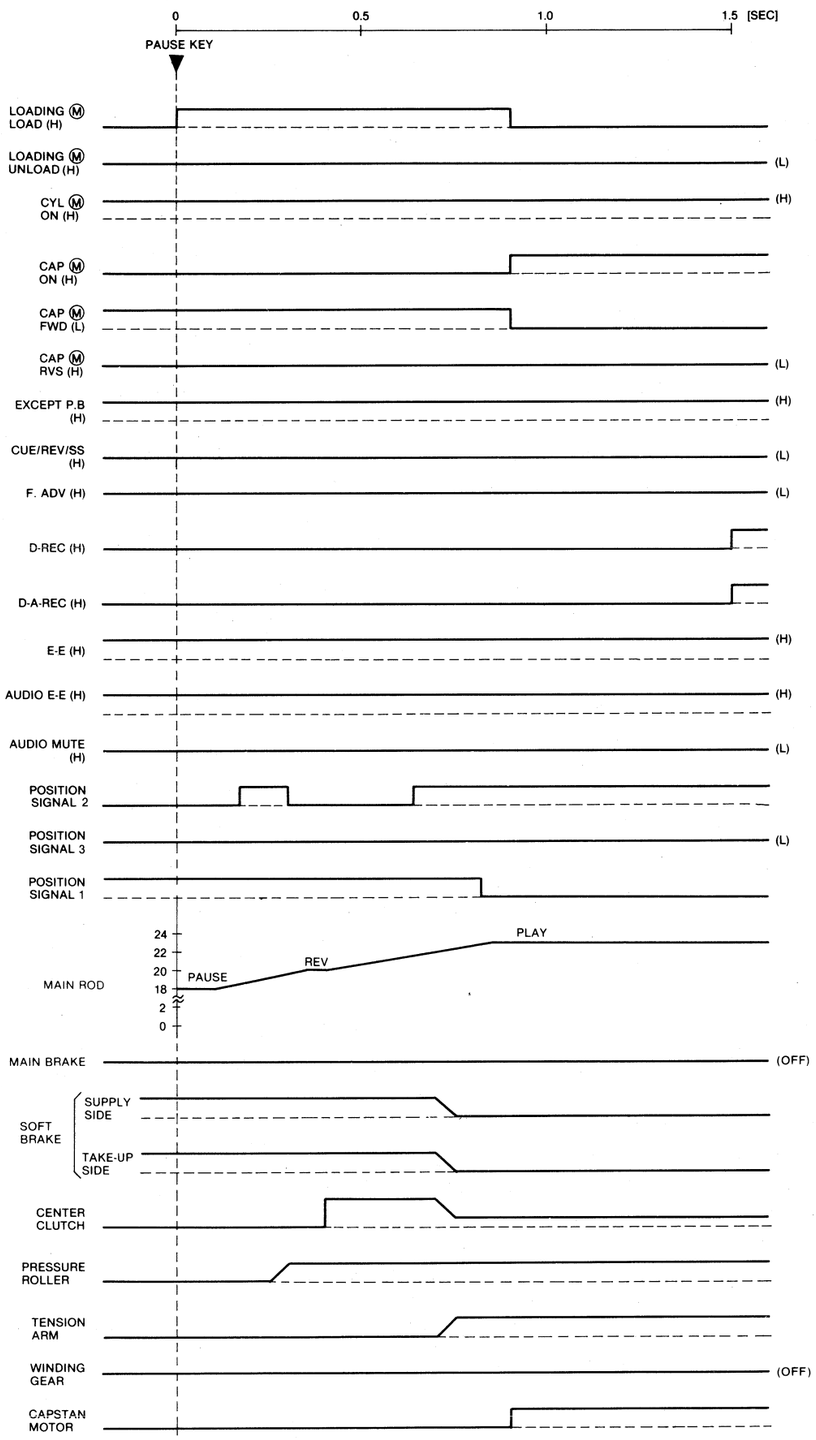
# REC • PLAY → REC • PAUSE MODE TIMING CHART



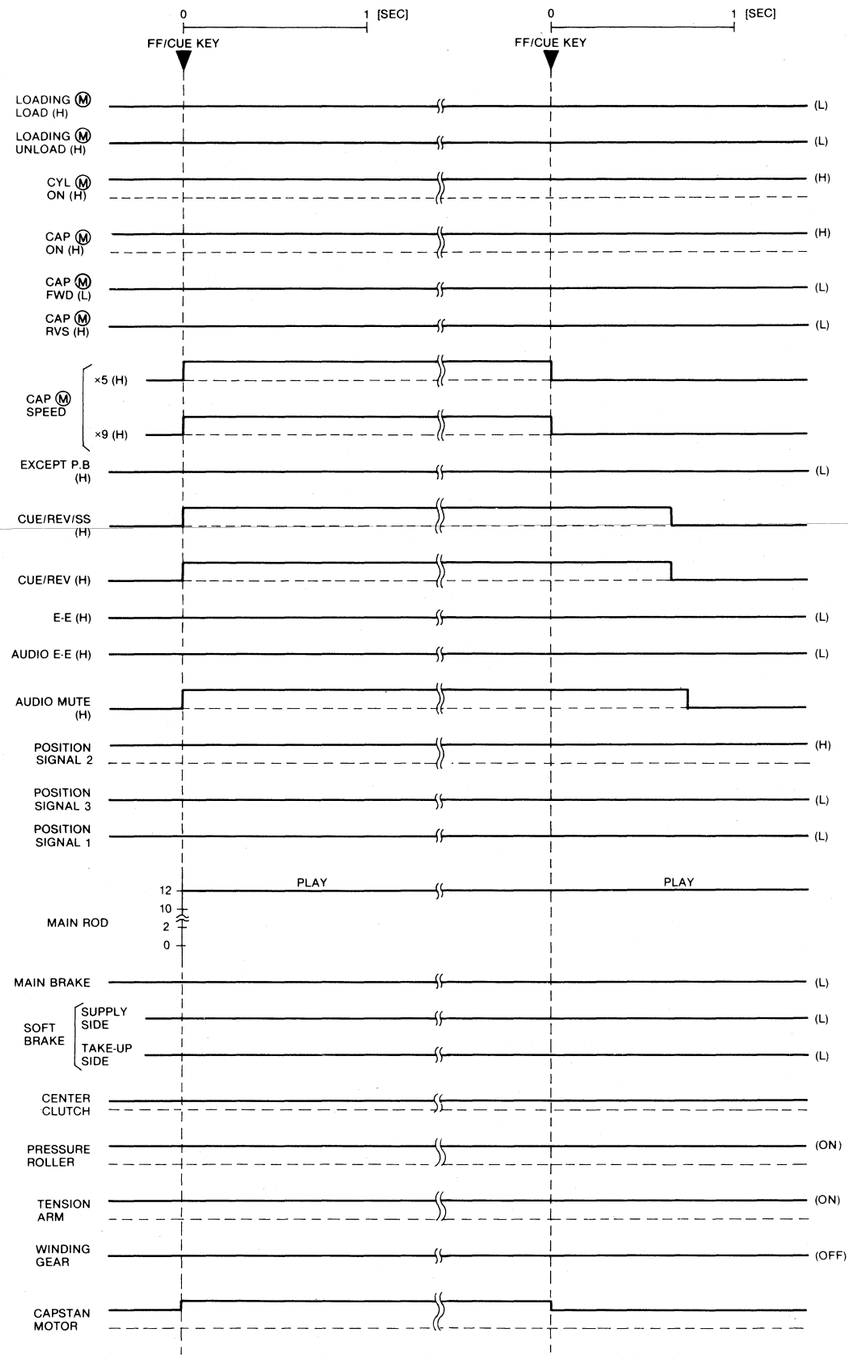




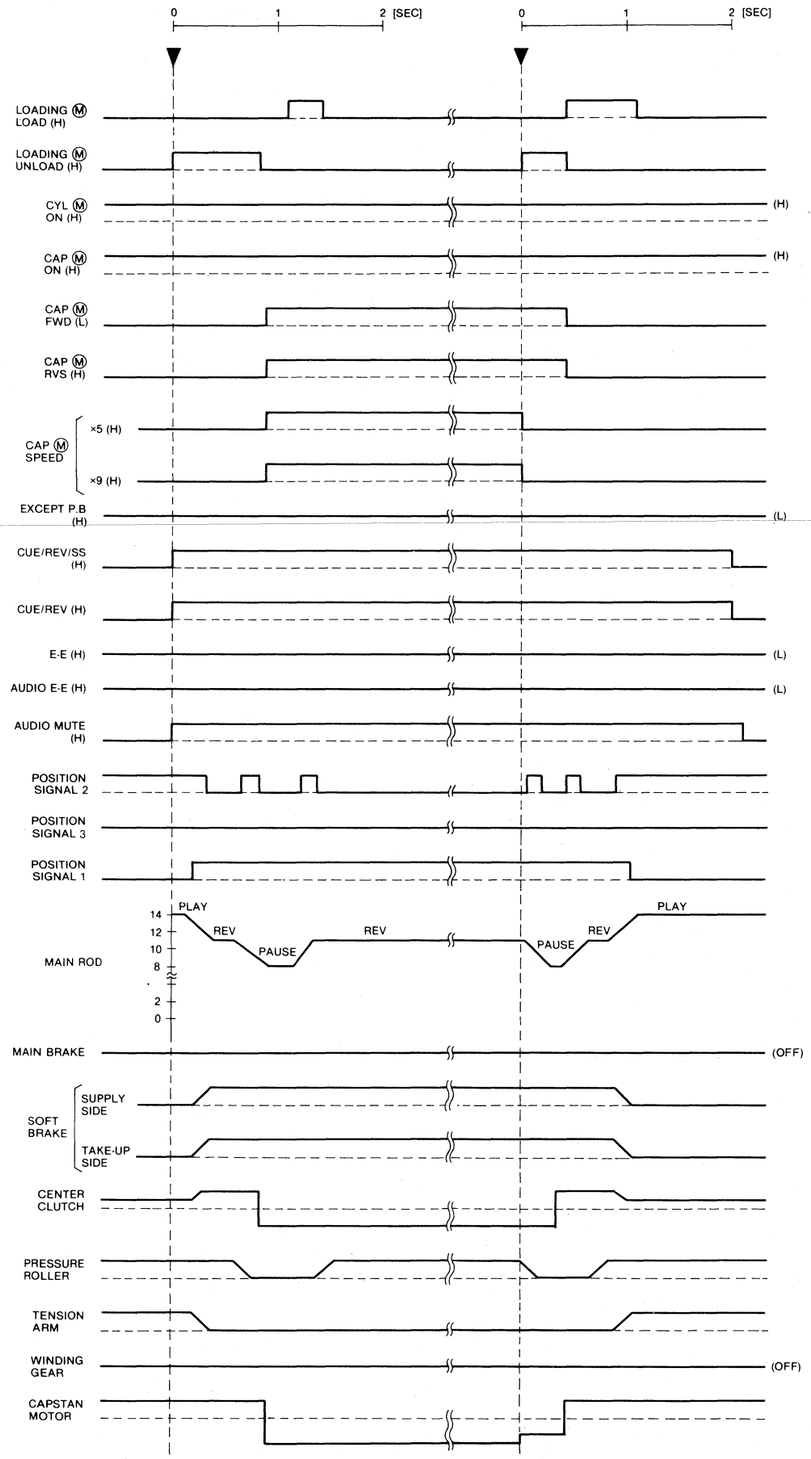

# REC • PAUSE → REC • PLAY MODE TIMING CHART



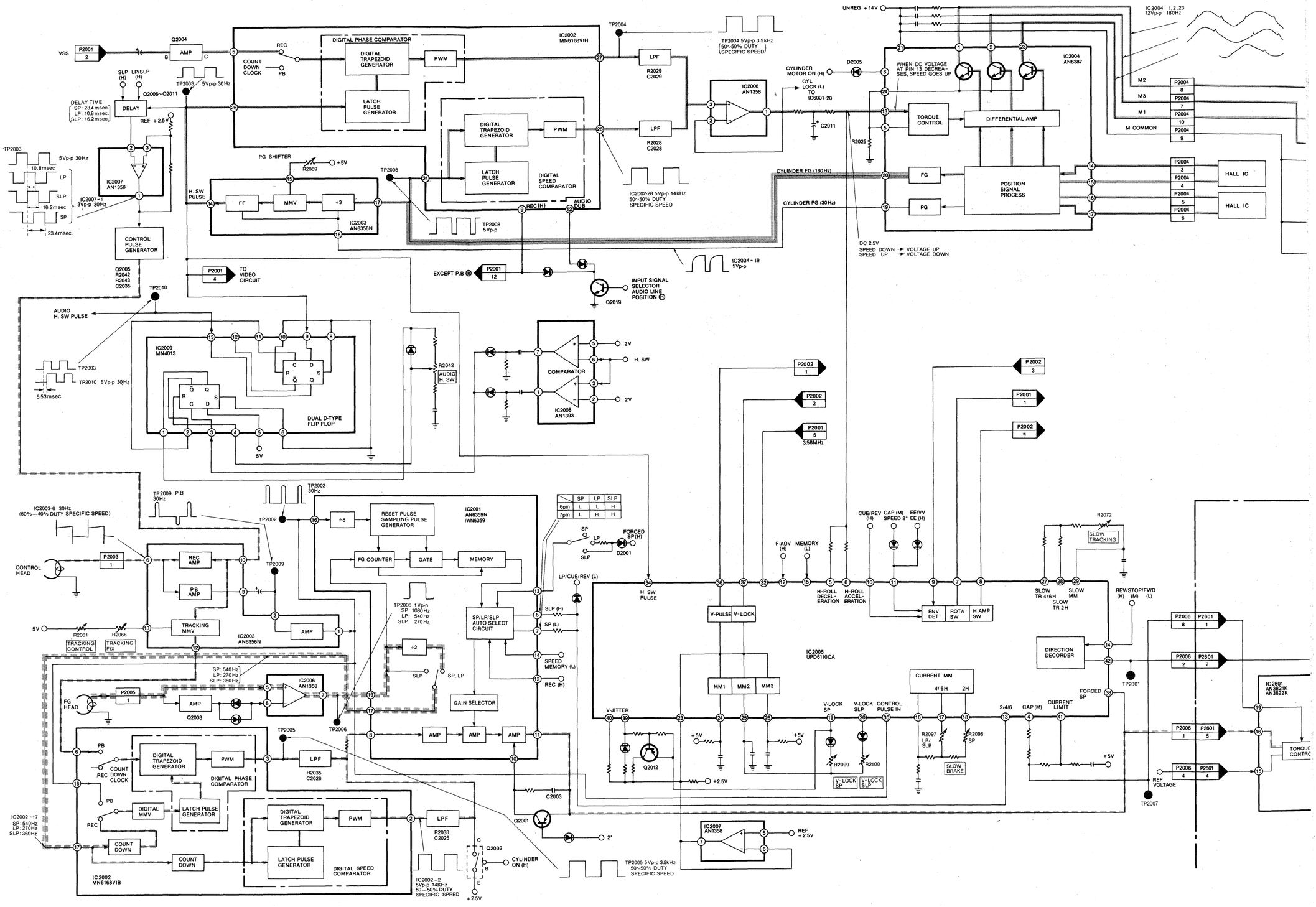
## PLAY → CUE → PLAY MODE TIMING CHART

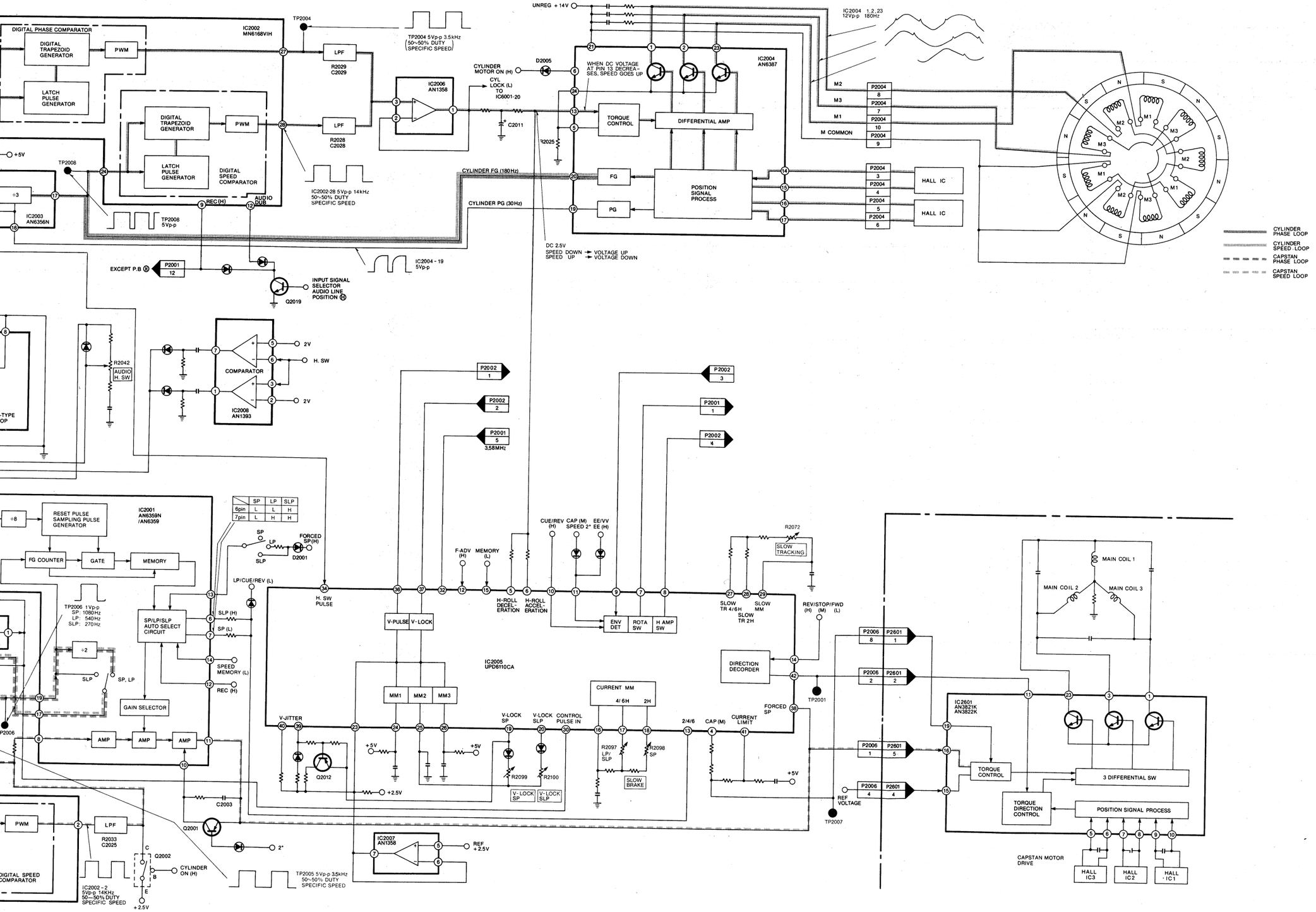



## PLAY → REVIEW → PLAY MODE TIMING CHART

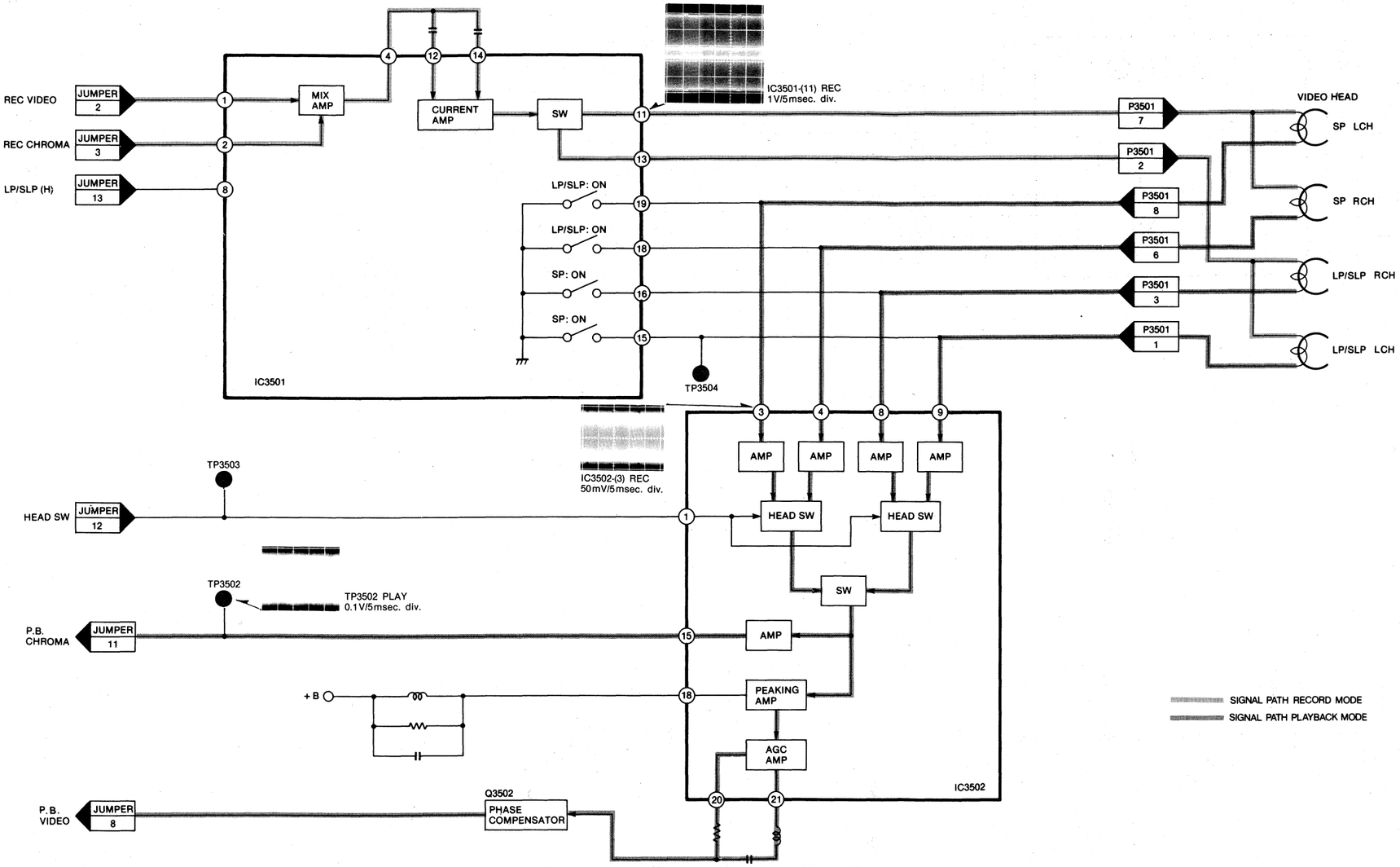


# SERVO BLOCK DIAGRAM




DIGITAL PHASE COMPARATOR
DIGITAL TRAPEZOID GENERATOR
PWM
LATCH PULSE GENERATOR
IC2002 MN6168VIH
TP2004
TP2004 5Vp-p 3.5kHz 50~50% DUTY SPECIFIC SPEED
LPF
R2029
C2029
DIGITAL TRAPEZOID GENERATOR
PWM
LATCH PULSE GENERATOR
DIGITAL SPEED COMPARATOR
AUDIO DUB
LPF
R2028
C2028
IC2006 AN1358
CYLINDER MOTOR ON (H)
D2005
CYL LOCK (L) TO IC6001-20
C2011
R2025
UNREG +14V
WHEN DC VOLTAGE AT PIN 13 DECREASES, SPEED GOES UP
IC2004 AN6387
TORQUE CONTROL
DIFFERENTIAL AMP
IC2004 1,2,23 12Vp-p 180Hz
M2
M3
M1
M COMMON
P2004 8
P2004 7
P2004 10
P2004 9
+5V
TP2008
÷3
IC2003 AN6356N
REC (H)
TP2008 5Vp-p
IC2002-28 5Vp-p 14kHz 50~50% DUTY SPECIFIC SPEED
CYLINDER FG (180Hz)
CYLINDER PG (30Hz)
FG
PG
POSITION SIGNAL PROCESS
P2004 3
P2004 4
P2004 5
P2004 6
HALL IC
HALL IC
DC 2.5V
SPEED DOWN → VOLTAGE UP
SPEED UP → VOLTAGE DOWN
IC2004 - 19 5Vp-p
EXCEPT P.B (H)
P2001 12
INPUT SIGNAL SELECTOR AUDIO LINE POSITION (H)
Q2019
CYLINDER PHASE LOOP
CYLINDER SPEED LOOP
CAPSTAN PHASE LOOP
CAPSTAN SPEED LOOP
R2042
AUDIO H. SW
COMPARATOR
IC2008 AN1393
2V
H. SW
2V
P2002 1
P2002 2
P2001 5 3.58MHz
P2002 3
P2001 1
P2002 4
RESET PULSE SAMPLING PULSE GENERATOR
IC2001 AN6359N /AN6359
FG COUNTER
GATE
MEMORY
SP
LP
SLP
FORCED SP (H)
D2001
LP/CUE/REV (L)
H. SW PULSE
F-ADV (H)
MEMORY (L)
CUE/REV (H)
CAP (M) SPEED 2*
EE/VV EE (H)
R2072
SLOW TRACKING
SLOW TR 4/6H
SLOW MM
SLOW TR 2H
REV/STOP/FWD (H) (M) (L)
H-ROLL DECELERATION
H-ROLL ACCELERATION
ENV DET
ROTA SW
H AMP SW
V-PULSE
V-LOCK
IC2005 UPD6110CA
DIRECTION DECORDER
TP2001
SP/LP/SLP AUTO SELECT CIRCUIT
SLP (H)
SP (L)
SPEED MEMORY (L)
REC (H)
SLP
SP, LP
GAIN SELECTOR
AMP
AMP
AMP
MM1
MM2
MM3
CURRENT MM
4/6H
2H
2/4/6
CAP (M)
CURRENT LIMIT
FORCED SP
V-JITTER
V-LOCK SP
V-LOCK SLP
CONTROL PULSE IN
Q2012
R2099
R2100
R2097 LP/SLP
R2098 SP
SLOW BRAKE
+2.5V
+5V
V-LOCK SP
V-LOCK SLP
C2003
REF VOLTAGE
TP2007
P2006 8
P2601 1
P2006 2
P2601 2
P2006 1
P2601 5
P2006 4
P2601 4
IC2601 AN3821K AN3822K
TORQUE CONTROL
3 DIFFERENTIAL SW
TORQUE DIRECTION CONTROL
POSITION SIGNAL PROCESS
MAIN COIL 1
MAIN COIL 2
MAIN COIL 3
CAPSTAN MOTOR DRIVE
HALL IC3
HALL IC2
HALL IC1
TP2006 1Vp-p SP: 1080Hz LP: 540Hz SLP: 270Hz
÷2
SLP
SP, LP
÷8
FG COUNTER
GATE
MEMORY
PWM
LPF
R2033
C2025
Q2001
Q2002
C
B
E
+2.5V
CYLINDER ON (H)
2*
IC2002 - 2 5Vp-p 14kHz 50~50% DUTY SPECIFIC SPEED
TP2005 5Vp-p 3.5kHz 50~50% DUTY SPECIFIC SPEED
IC2007 AN1358
REF +2.5V
SP LP SLP
6pin L L H
7pin L H H

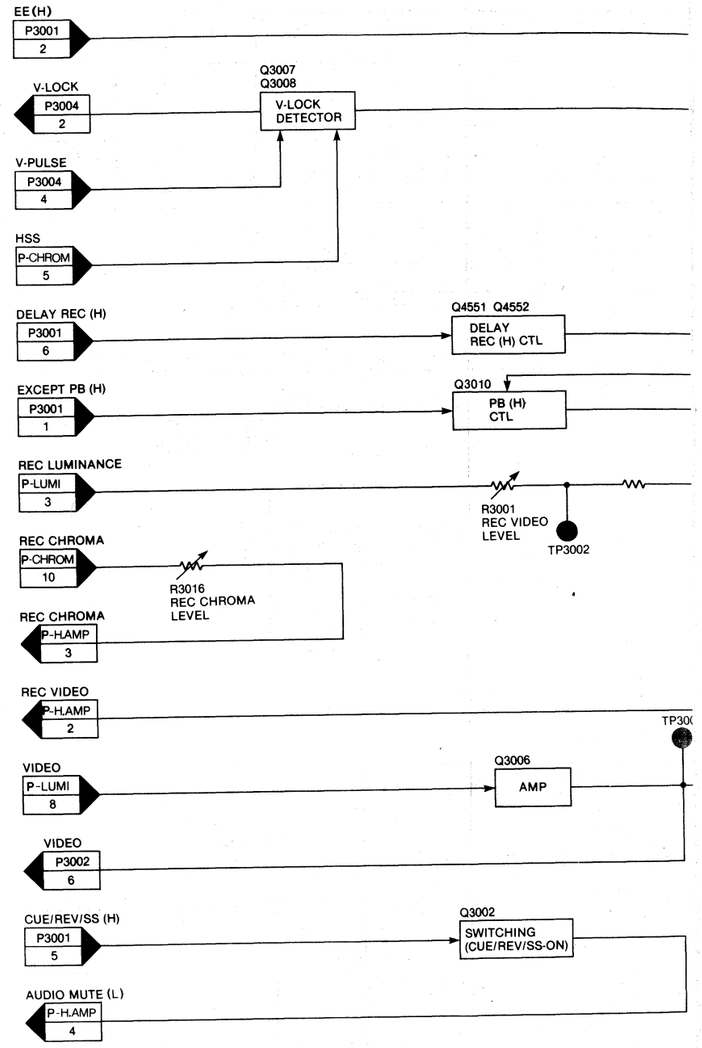
# HEAD AMP BLOCK DIAGRAM



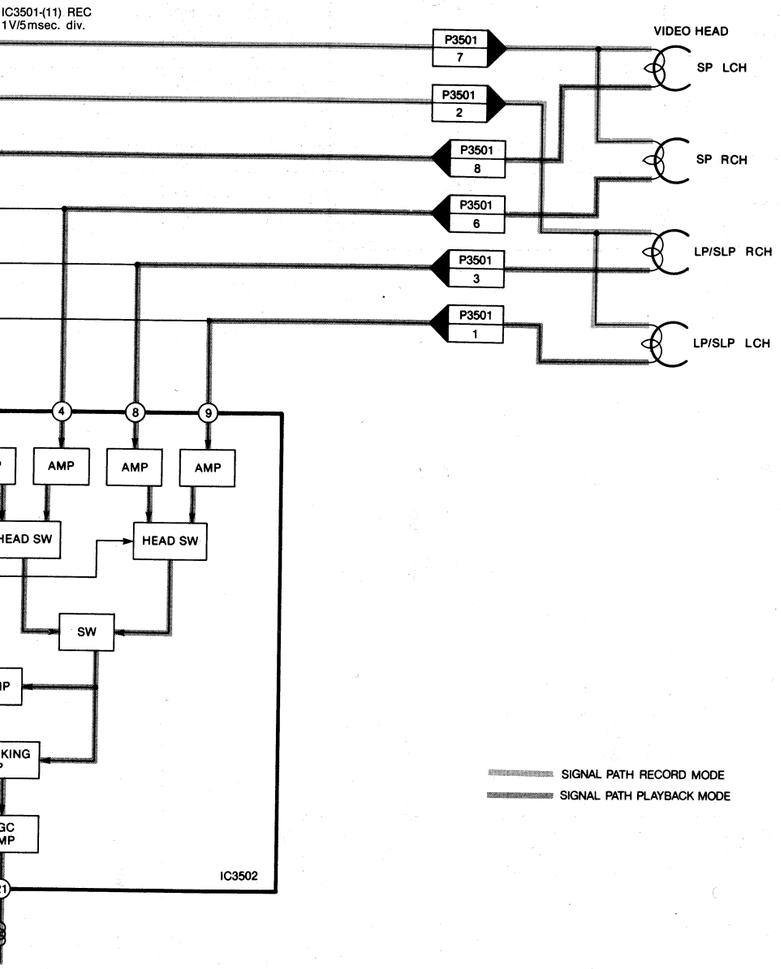

SIGNAL PATH RECORD MODE

SIGNAL PATH PLAYBACK MODE

# SIGNAL PROCESS BLOCK DIAGRAI

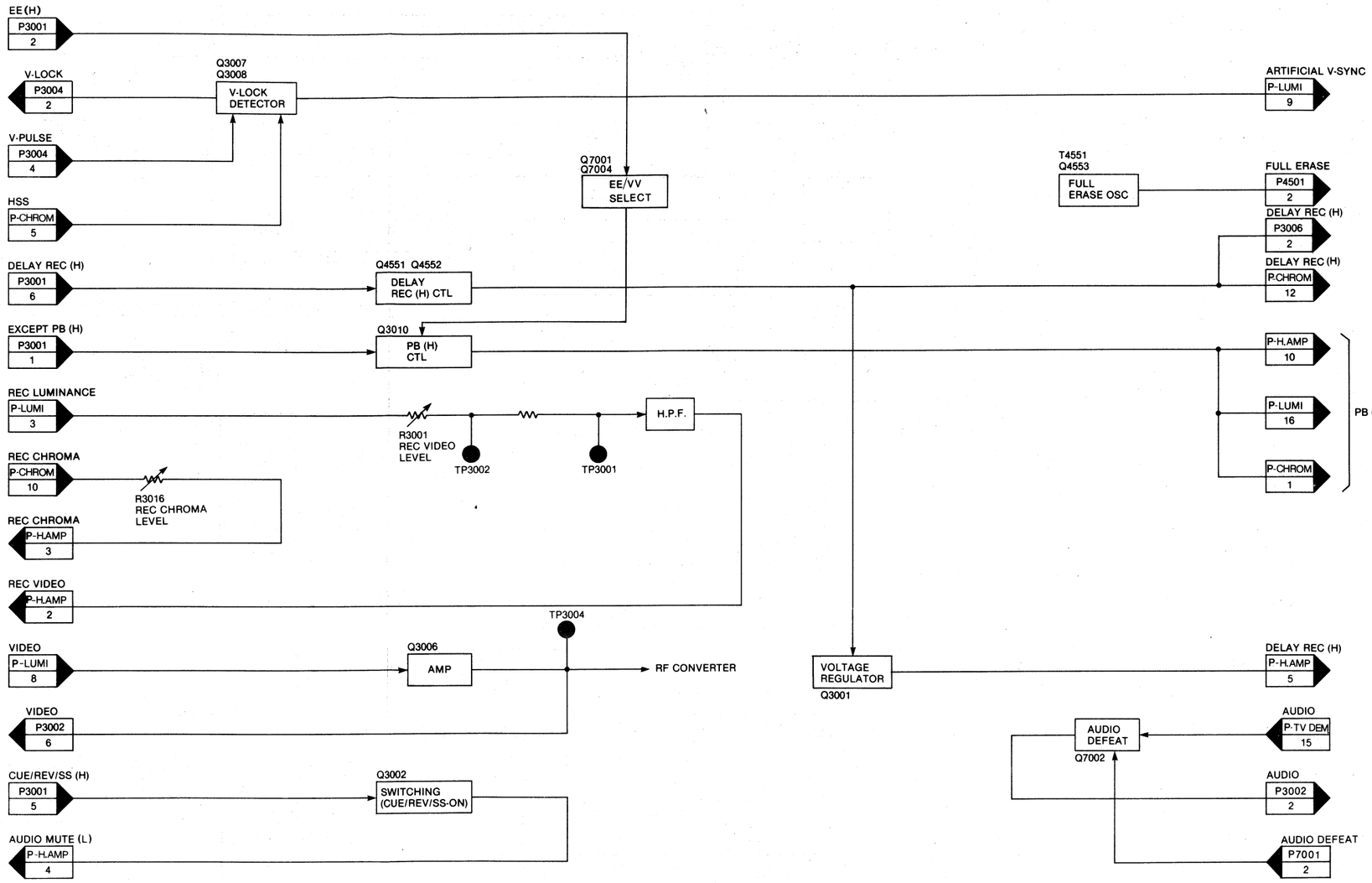


# SIGNAL PROCESS BLOCK DIAGRAM

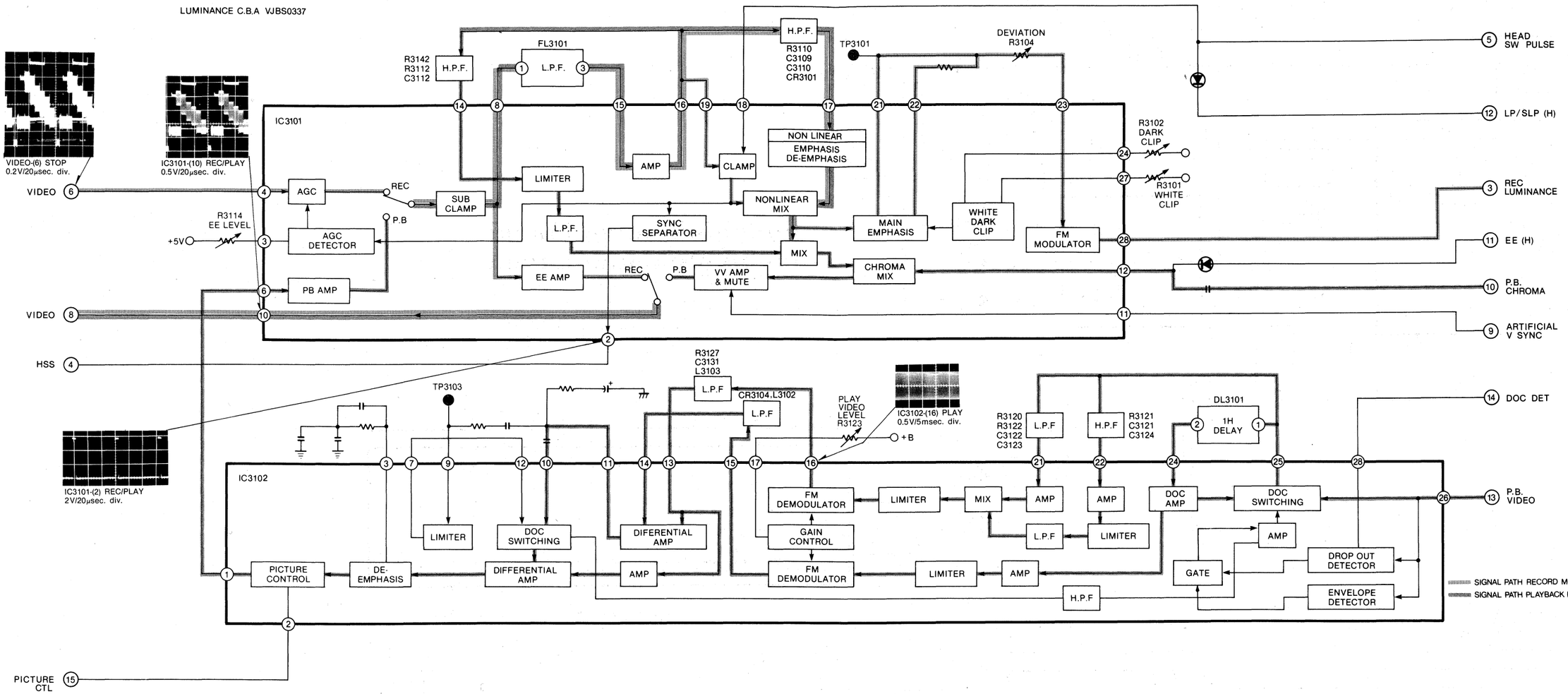



SIGNAL PATH RECORD MODE

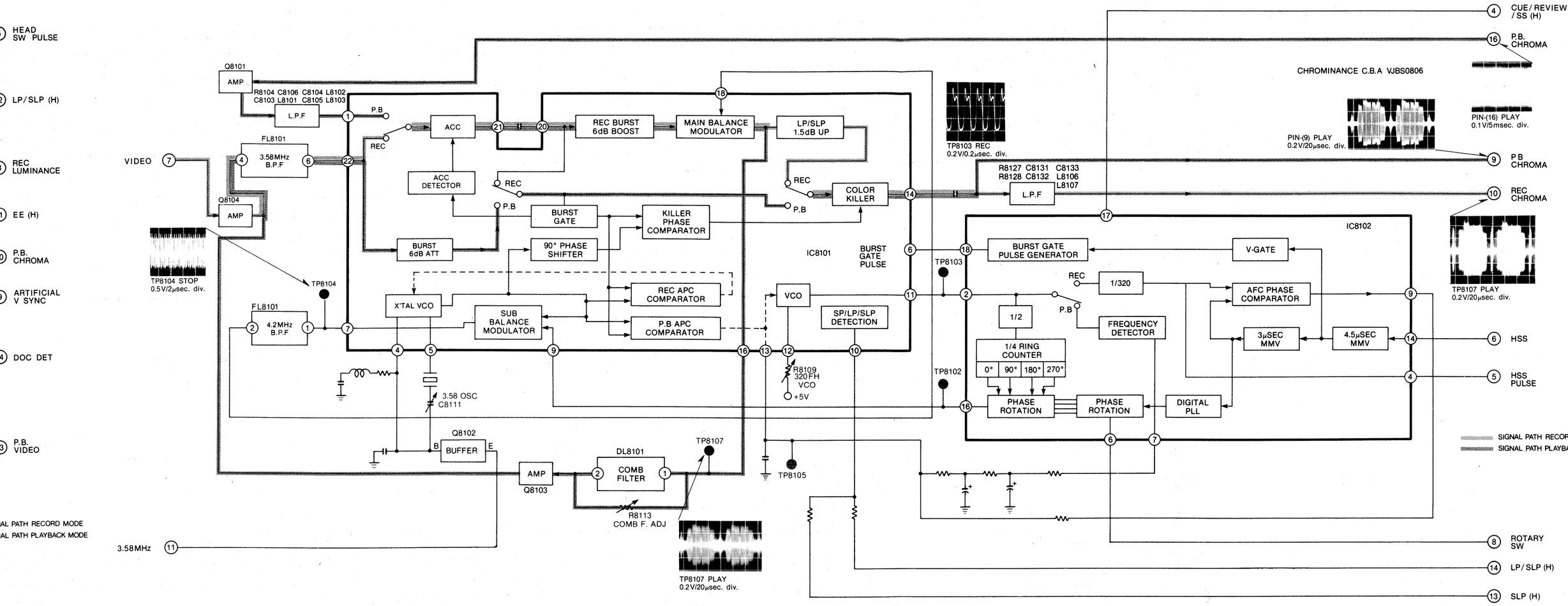
SIGNAL PATH PLAYBACK MODE



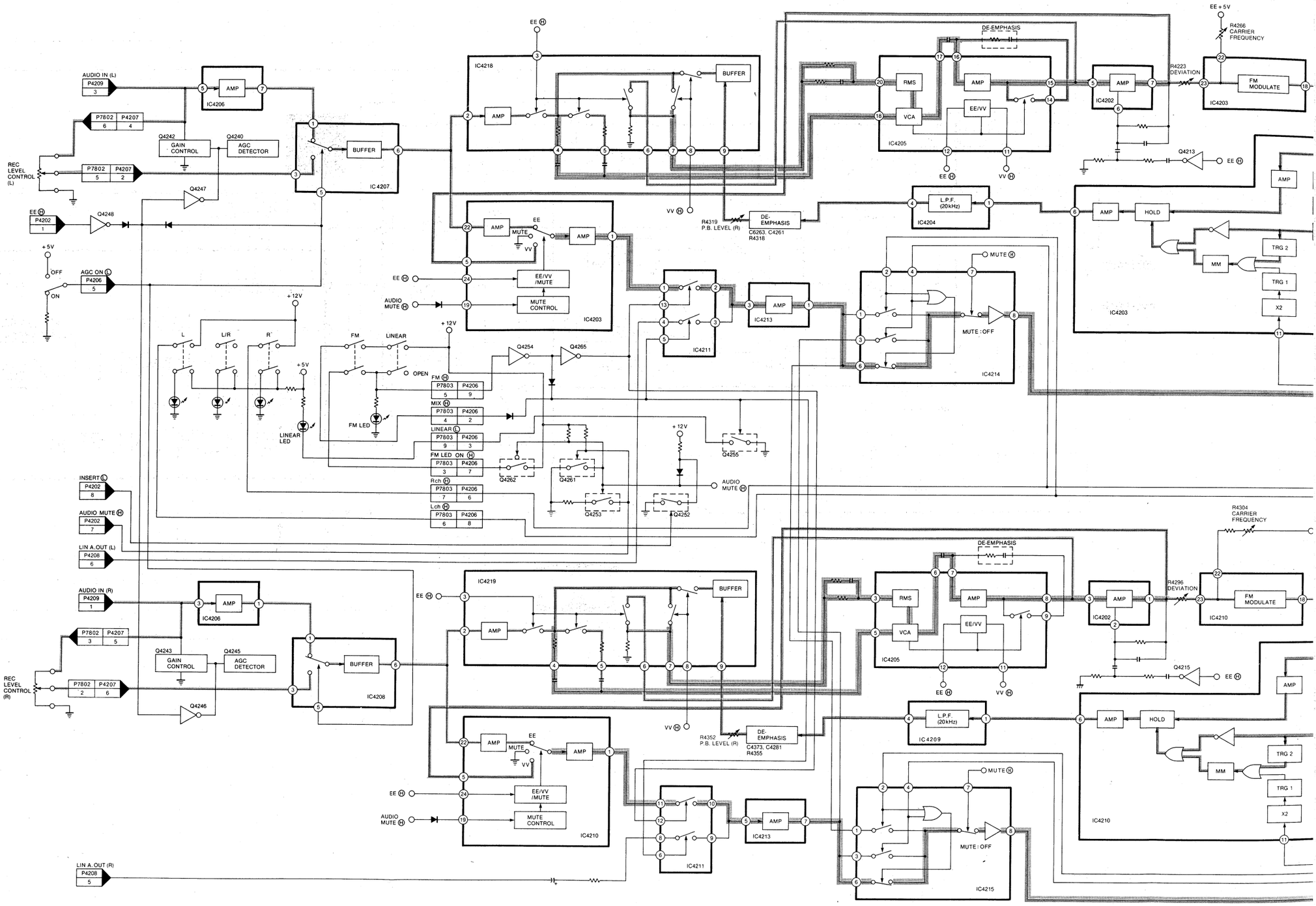
# LUMINANCE BLOCK DIAGRAM

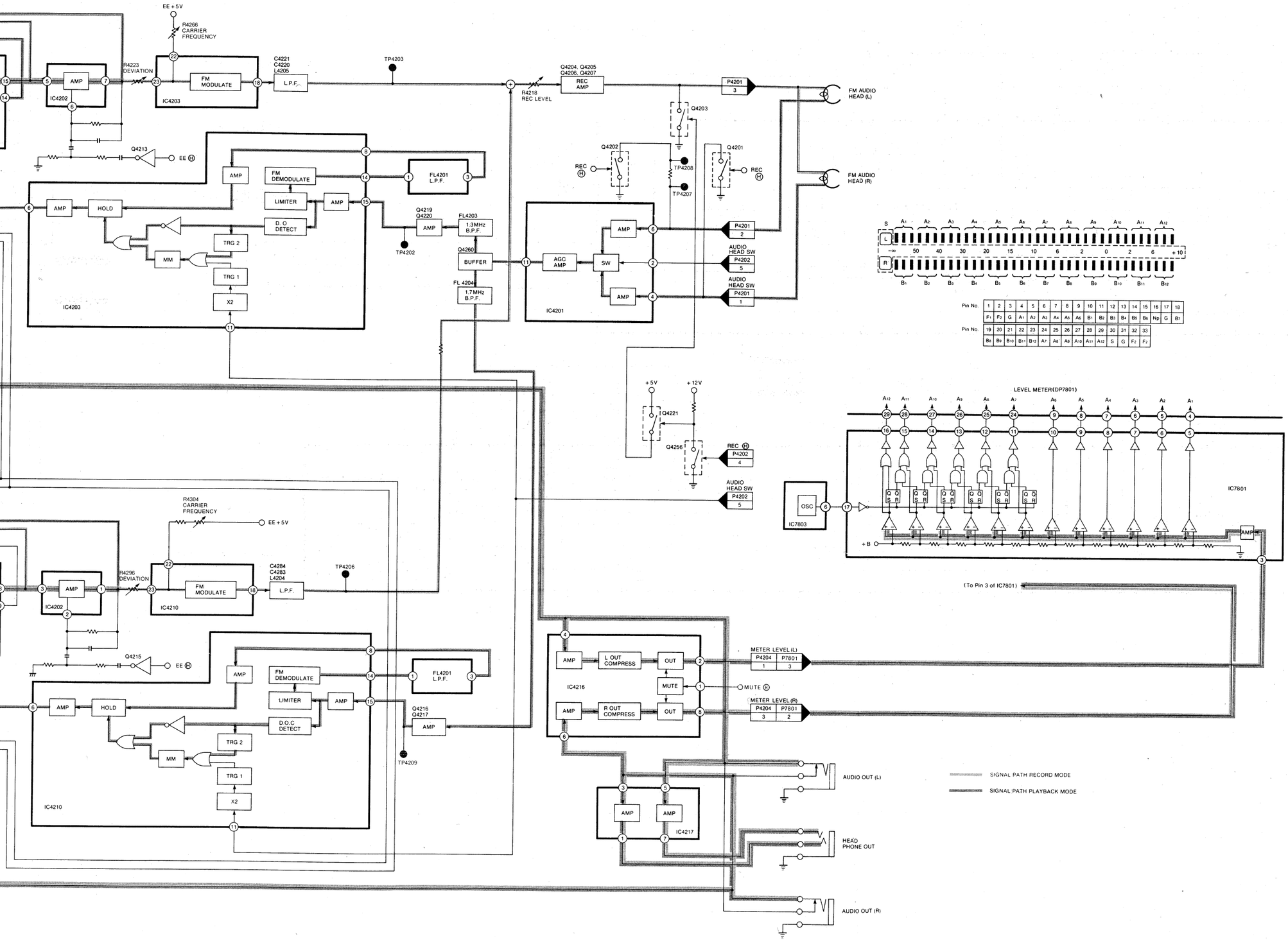


# CHROMINANCE BLOCK DIAGRAM

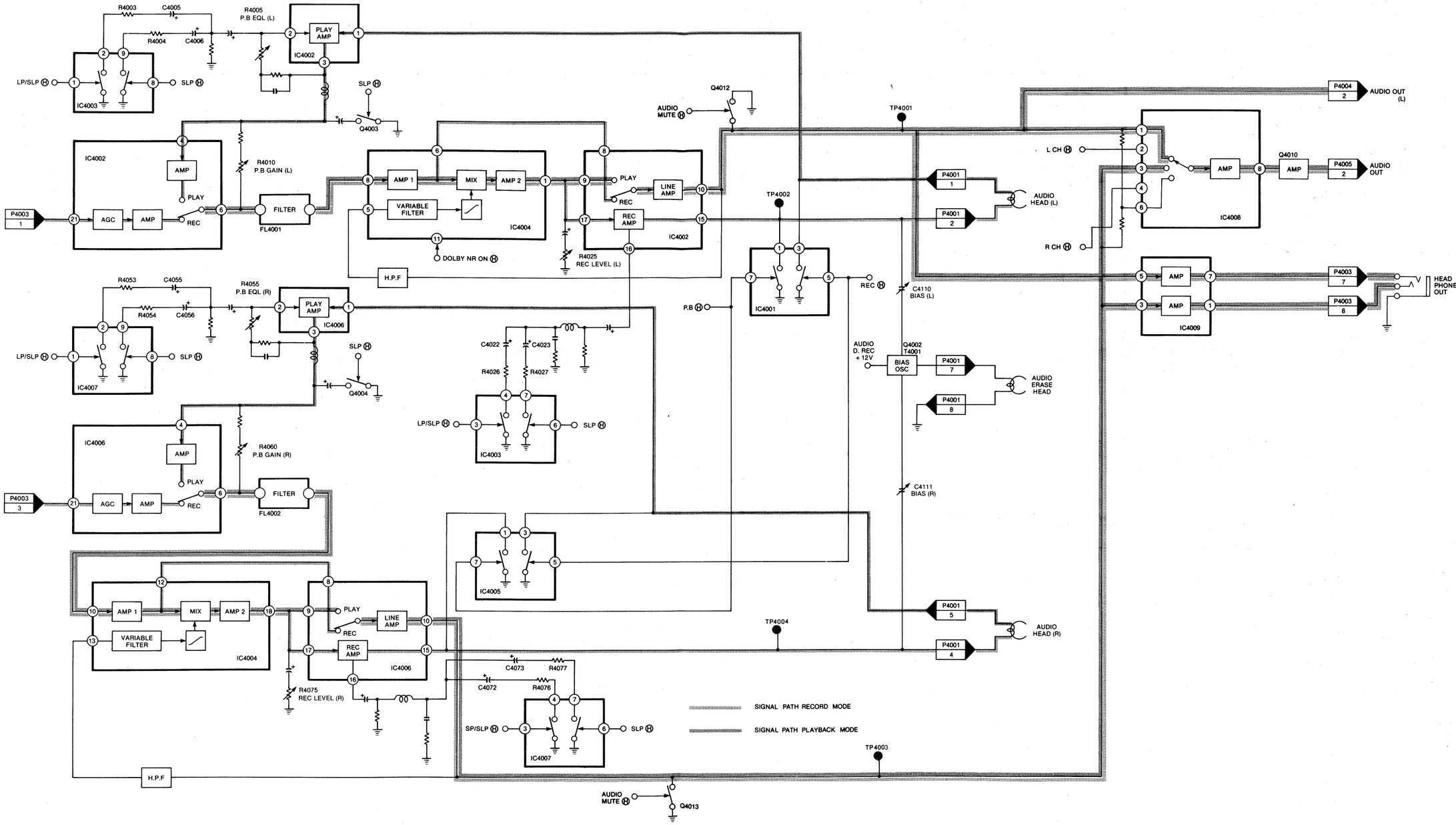


# FM AUDIO BLOCK DIAGRAM

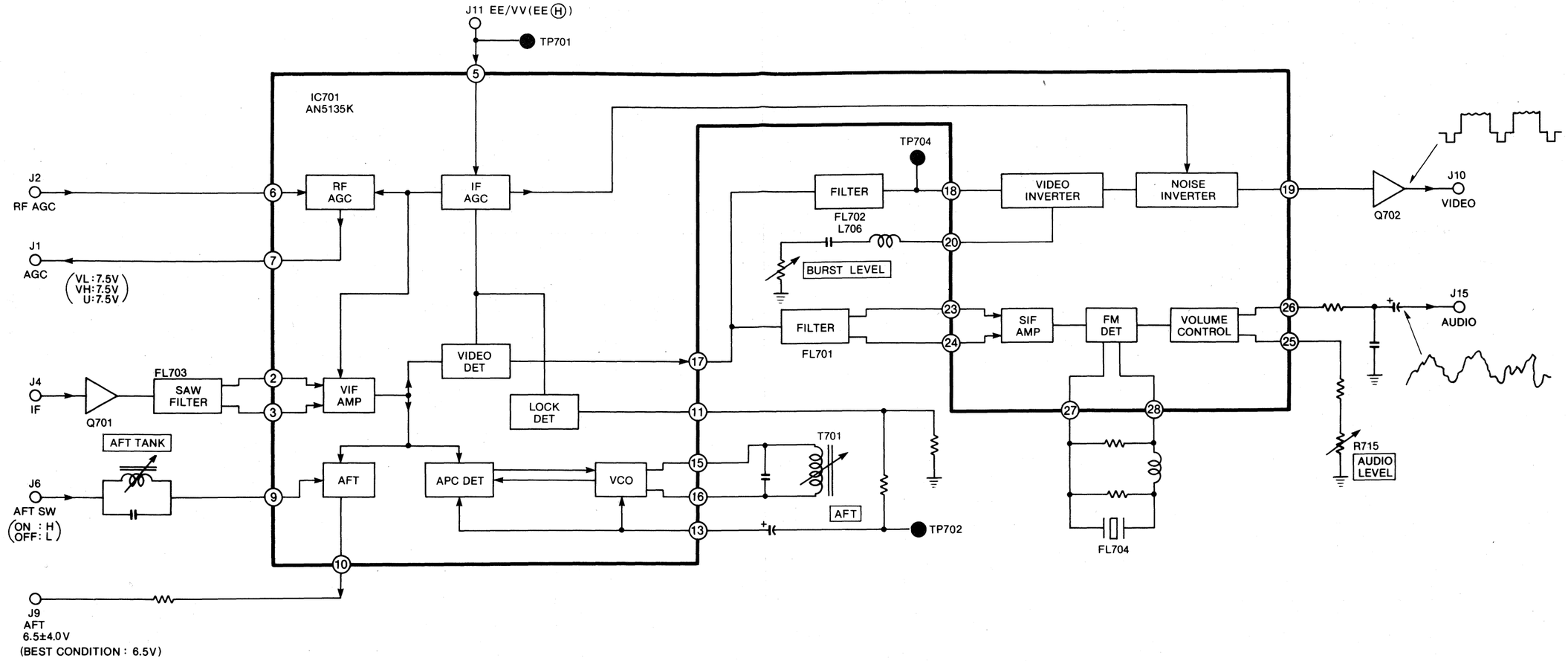



EE + 5V
R4266 CARRIER FREQUENCY
R4223 DEVIATION
C4221 C4220 L4205
TP4203
Q4204, Q4205 Q4206, Q4207
REC AMP
P4201 3
FM AUDIO HEAD (L)
R4218 REC LEVEL
Q4203
Q4202
Q4201
REC (H)
TP4208
TP4207
FM AUDIO HEAD (R)
AMP
IC4202
FM MODULATE
L.P.F.
IC4203
Q4213
EE (H)
FM DEMODULATE
LIMITER
D. O DETECT
FL4201 L.P.F.
HOLD
TRG 2
MM
TRG 1
X2
Q4219 Q4220
FL4203 1.3MHz B.P.F.
TP4202
Q4260
BUFFER
FL 4204 1.7MHz B.P.F.
AGC AMP
SW
P4201 2
AUDIO HEAD SW
P4202 5
P4201 1
IC4201
S A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12
L
∞ 50 40 30 20 15 10 6 2 0 2 6 +10
R
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12
Pin No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
F1 F2 G A1 A2 A3 A4 A5 A6 B1 B2 B3 B4 B5 B6 Np G B7
Pin No. 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
B8 B9 B10 B11 B12 A1 A2 A9 A10 A11 A12 S G F2 F2
+5V
+12V
Q4221
Q4256
REC (H)
P4202 4
AUDIO HEAD SW
P4202 5
LEVEL METER(DP7801)
A12 A11 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1
OSC
IC7803
IC7801
+B
(To Pin 3 of IC7801)
R4304 CARRIER FREQUENCY
EE + 5V
R4296 DEVIATION
C4284 C4283 L4204
TP4206
Q4215
EE (H)
Q4216 Q4217
TP4209
IC4210
L OUT COMPRESS
R OUT COMPRESS
OUT
MUTE
MUTE (H)
IC4216
METER LEVEL (L)
P4204 1
P7801 3
METER LEVEL (R)
P4204 3
P7801 2
IC4217
AUDIO OUT (L)
HEAD PHONE OUT
AUDIO OUT (R)
SIGNAL PATH RECORD MODE
SIGNAL PATH PLAYBACK MODE

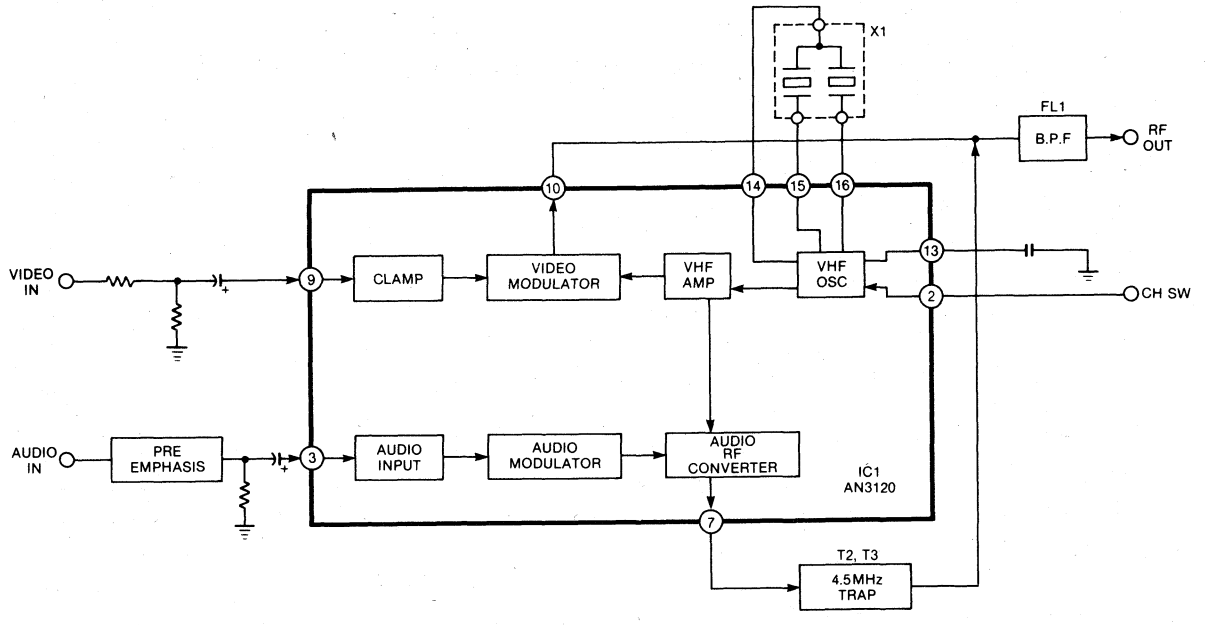
# NORMAL AUDIO BLOCK DIAGRAM



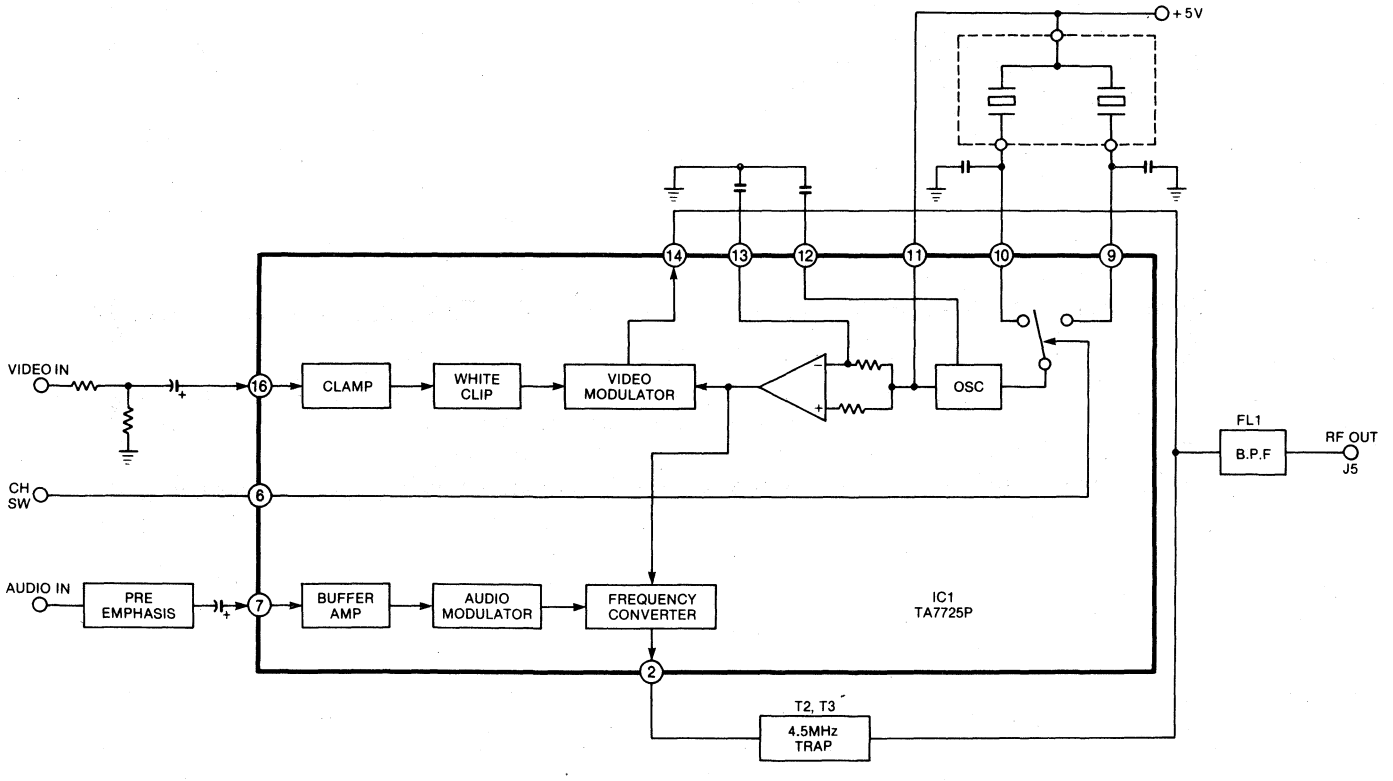
# TV DEMODULATOR BLOCK DIAGRAM



# RF CONVERTER BLOCK DIAGRAM (VEQS0252/0253)




# RF CONVERTER BLOCK DIAGRAM (VEQS0254/0255)



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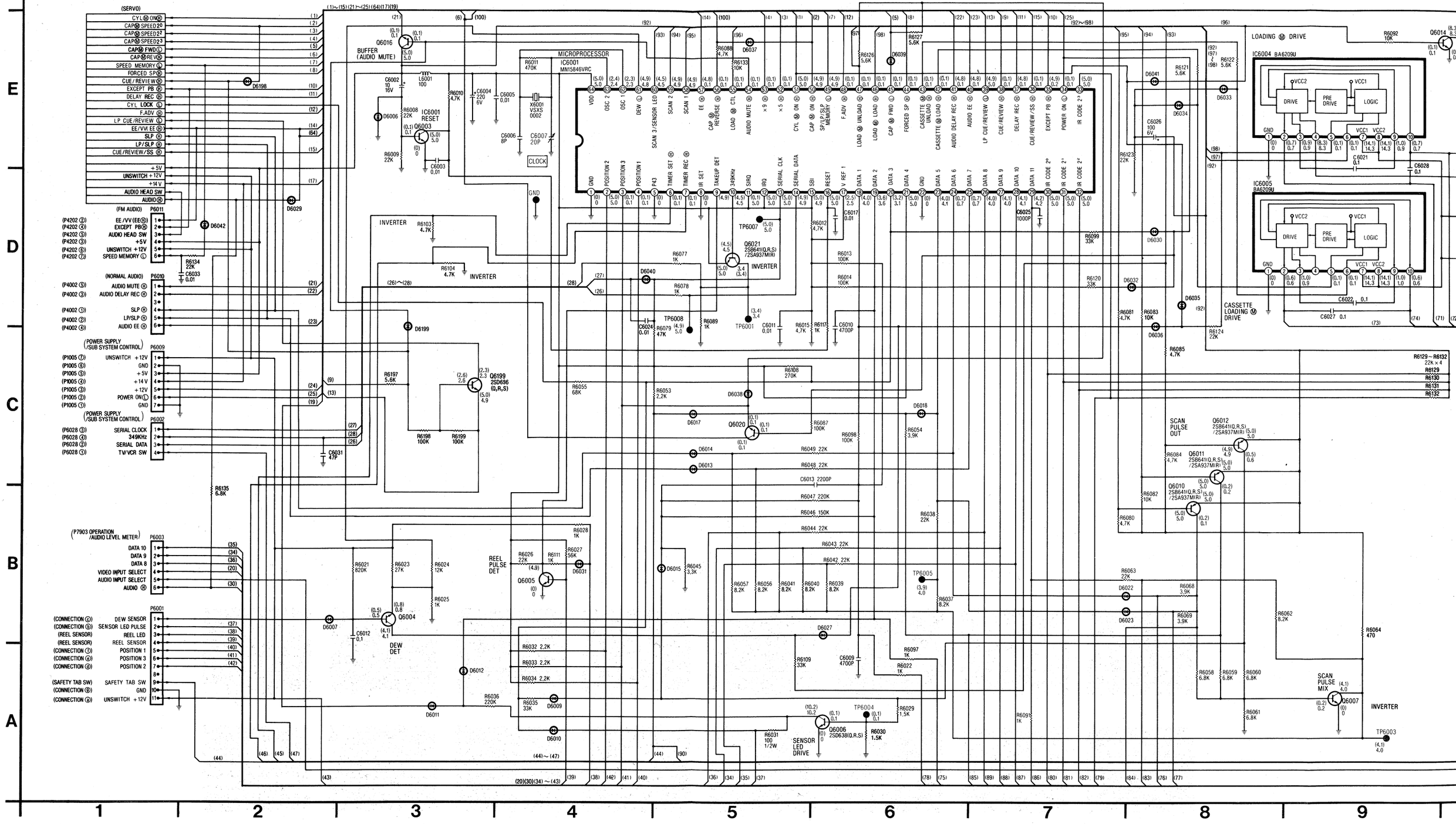
**IMPORTANT SAFETY NOTICE**

There are special components used in this equipment which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

# MAIN SCHEMATIC DIAGRAM (SYSTEM CONTROL/SUB AUDIO SECTION)

SYSTEM CONTROL SECTION
VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

SUB AUDIO SECTION
VOLTAGE MEASUREME
MONOSCOPE SIGN
MONOSCOPE SIGN

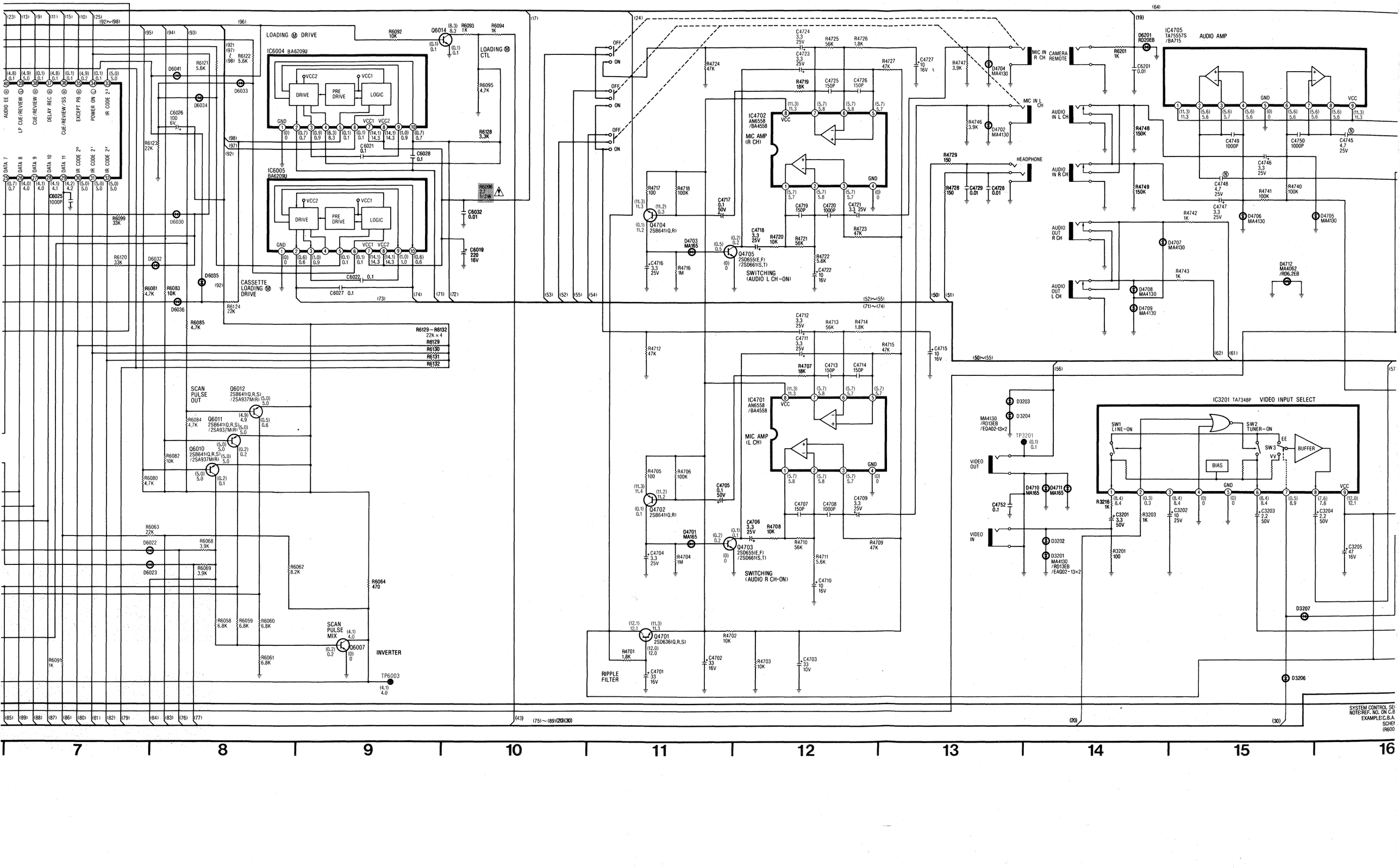

(SERVO)
CYL Ⓜ ONⓁ
CAPⓂ SPEED20
CAPⓂ SPEED22
CAPⓂ SPEED23
CAPⓂ FWDⓁ
CAPⓂ REVⓁ
SPEED MEMORY Ⓛ
FORCED SPⓂ
CUE/REVIEW Ⓜ
EXCEPT PB Ⓜ
DELAY REC Ⓜ
CYL LOCK Ⓛ
F.ADV Ⓜ
LP CUE/REVIEW Ⓛ
EE/VVI EE Ⓜ
SLP Ⓜ
LP/SLP Ⓜ
CUE/REVIEW/SS Ⓜ
+5V
UNSWITCH +12V
+14 V
AUDIO HEAD SW
AUDIO Ⓜ
(FM AUDIO) P6011
(P4202 ②) EE/VV (EE Ⓜ)
(P4202 ④) EXCEPT PB Ⓜ
(P4202 ⑤) AUDIO HEAD SW
(P4202 ③) +5V
(P4202 ⑥) UNSWITCH +12V
(P4202 ⑦) SPEED MEMORY Ⓛ
(NORMAL AUDIO) P6010
(P4002 ⑤) AUDIO MUTE Ⓜ
(P4002 ③) AUDIO DELAY REC Ⓜ
(P4002 ①) SLP Ⓜ
(P4002 ②) LP/SLP Ⓜ
(P4002 ④) AUDIO EE Ⓜ
(POWER SUPPLY /SUB SYSTEM CONTROL) P6009
(P1005 ⑦) UNSWITCH +12V
(P1005 ⑧) GND
(P1005 ⑤) +5V
(P1005 ④) +14 V
(P1005 ③) +12V
(P1005 ②) POWER ON Ⓛ
(P1005 ①) GND
(POWER SUPPLY /SUB SYSTEM CONTROL) P6002
(P6028 ③) SERIAL CLOCK
(P6028 ④) 349KHz
(P6028 ②) SERIAL DATA
(P6028 ①) TV/VCR SW
(P7903 OPERATION /AUDIO LEVEL METER) P6003
DATA 10
DATA 9
DATA 8
VIDEO INPUT SELECT
AUDIO INPUT SELECT
AUDIO Ⓜ
P6001
(CONNECTION Ⓖ) DEW SENSOR
(CONNECTION Ⓖ) SENSOR LED PULSE
(REEL SENSOR) REEL LED
(REEL SENSOR) REEL SENSOR
(CONNECTION Ⓙ) POSITION 1
(CONNECTION Ⓖ) POSITION 3
(CONNECTION Ⓖ) POSITION 2
(SAFETY TAB SW) SAFETY TAB SW
(CONNECTION Ⓑ) GND
(CONNECTION Ⓖ) UNSWITCH +12V
BUFFER (AUDIO MUTE)
Q6016
MICROPROCESSOR
IC6001 MN15846VRC
X6001 VSXS 0002
CLOCK
IC6001 RESET
Q6003
INVERTER
Q6021 2SB641(Q,R,S) /2SA937M(R)
TP6007
TP6008
TP6001
Q6024
Q6079 47K
Q6199 2SD636 (Q,R,S)
TP6002
C6031 47P
R6198 100K
R6199 100K
R6135 6.8K
R6055 68K
R6053 2.2K
R6108 270K
D6038
D6017
Q6020
R6087 100K
R6098 100K
D6018
R6054 3.9K
D6014
D6013
R6049 22K
R6048 22K
C6013 2200P
R6047 220K
R6046 150K
R6044 22K
R6043 22K
R6042 22K
R6038 22K
D6015
R6045 3.3K
R6057 8.2K
R6056 8.2K
R6041 8.2K
R6040 8.2K
R6039 8.2K
TP6005
R6037 8.2K
R6028 1K
REEL PULSE DET
R6026 22K
R6111 1K
R6027 56K
D6031
Q6005
R6021 820K
R6023 27K
R6024 12K
R6025 1K
Q6004
DEW DET
D6007
C6012 0.1
R6032 2.2K
R6033 2.2K
R6034 2.2K
R6036 220K
D6012
D6011
D6009
D6010
R6031 100 1/2W
SENSOR LED DRIVE
Q6006 2SD638(Q,R,S)
TP6004
R6030 1.5K
R6029 1.5K
R6091 1K
R6109 33K
C6009 4700P
R6097 1K
R6022 1K
D6027
R6063 22K
D6022
D6023
R6068 3.9K
R6069 3.9K
R6062 8.2K
R6064 470
R6058 6.8K
R6059 6.8K
R6060 6.8K
R6061 6.8K
SCAN PULSE MIX
Q6007
INVERTER
TP6003
R6129 ~ R6132 22K × 4
R6129
R6130
R6131
R6132
SCAN PULSE OUT
Q6012 2SB641(Q,R,S) /2SA937M(R)
Q6011 2SB641(Q,R,S) /2SA937M(R)
Q6010 2SB641(Q,R,S) /2SA937M(R)
R6084 4.7K
R6082 10K
R6080 4.7K
LOADING Ⓜ DRIVE
Q6014
IC6004 BA6209U
IC6005 BA6209U
DRIVE
PRE DRIVE
LOGIC
CASSETTE LOADING Ⓜ DRIVE
R6092 10K
R6093 1K
R6121 5.6K
R6122 5.6K
R6123 22K
R6124 22K
R6120 33K
R6081 4.7K
R6083 10K
R6085 4.7K
R6099 33K
C6026 100 6V
C6021 0.1
C6028 0.1
C6022 0.1
C6027 0.1
C6025 1000P
C6017 0.01
R6012 4.7K
R6013 100K
R6014 100K
R6015 4.7K
R6117 1K
C6010 4700P
C6011 0.01
R6077 1K
R6078 1K
R6089 1K
R6103 4.7K
R6104 4.7K
R6134 22K
C6033 0.01
R6197 5.6K
R6126 5.6K
R6127 5.6K
R6088 4.7K
R6133 10K
D6037
D6039
D6040
D6041
D6042
D6029
D6198
D6199
D6030
D6032
D6033
D6034
D6035
D6036
L6001 100
C6002 10 16V
R6010 4.7K
C6004 220 6V
C6005 0.01
C6006 8P
C6007 20P
R6006 22K
R6009 22K
C6003 0.01
C6030 0.1
C6031 0.1
C6032 0.1
C6033 0.1
C6034 0.1
C6035 0.1
C6036 0.1
C6037 0.1
C6038 0.1
C6039 0.1
C6040 0.1
C6041 0.1
C6042 0.1
C6043 0.1
C6044 0.1
C6045 0.1
C6046 0.1
C6047 0.1
C6048 0.1
C6049 0.1

STEM CONTROL SECTION
.TAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

SUB AUDIO SECTION
VOLTAGE MEASUREMENT:
MONOSCOPE SIGNAL IN SP REC MODE WITH BRACKET.
MONOSCOPE SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDU
ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE
HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTRO
(ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



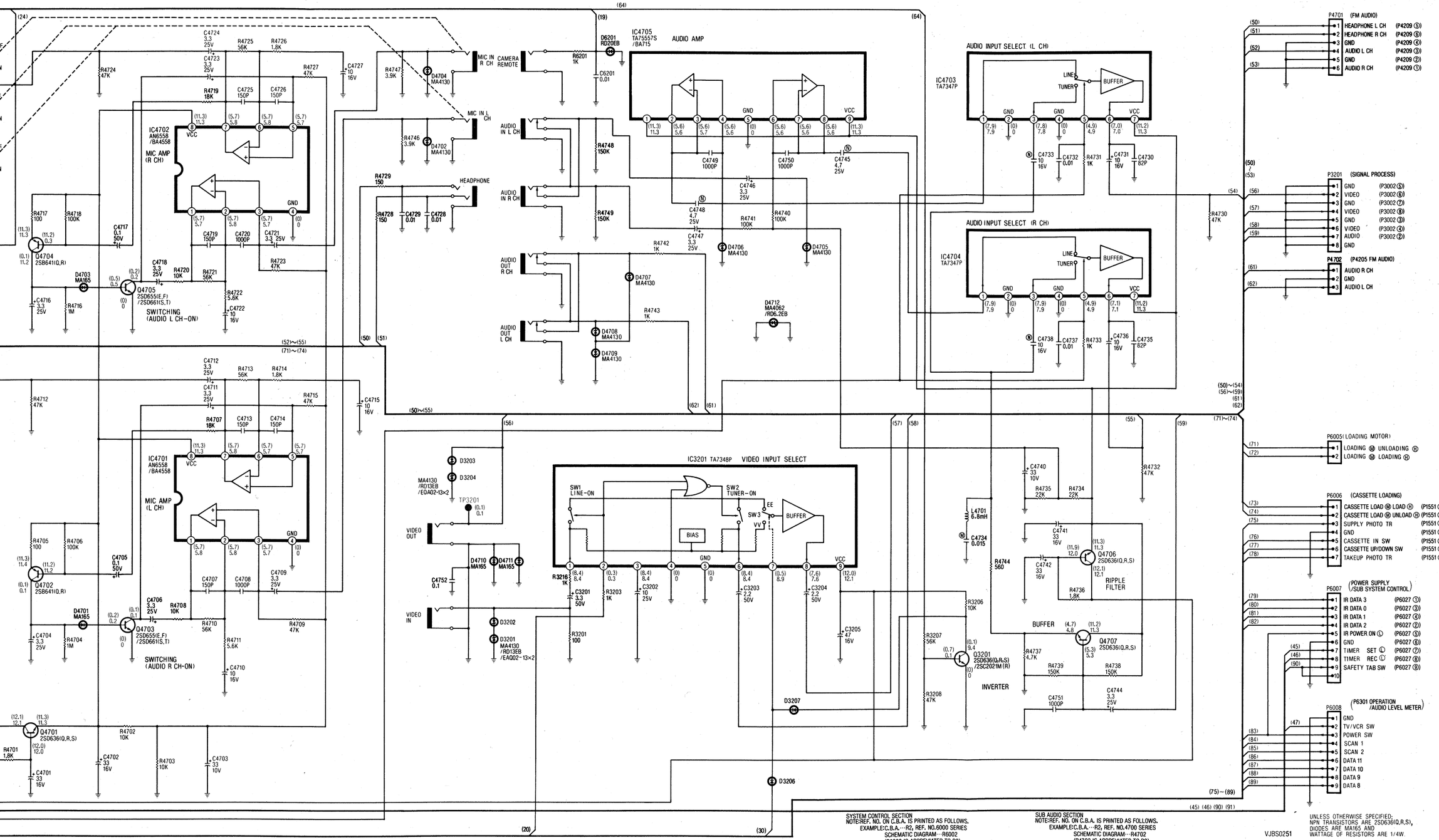
KET.
BRACKET.

**IMPORTANT SAFETY NOTICE:**
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

**SPECIAL NOTE:**
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

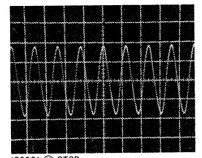
CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

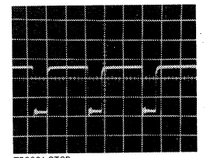
4-1
MAIN
SCHEMATIC DIAGRAM
(SYSTEM CONTROL
/SUB AUDIO SECTION)

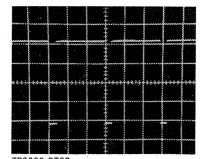


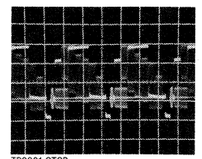

| SYSTEM CONTROL SECTION | |
|---|---|
| Q6003 | 3-E |
| Q6004 | 3-B |
| Q6005 | 4-B |
| Q6006 | 6-A |
| Q6007 | 9-A |
| Q6010 | 8-B |
| Q6011 | 8-C |
| Q6012 | 8-C |
| Q6014 | 10-E |
| Q6016 | 3-E |
| Q6020 | 5-C |
| Q6021 | 5-D |
| Q6119 | 3-C |

| SUB AUDIO SECTION | |
|---|---|
| Q4701 | 11-A |
| Q4702 | 11-B |
| Q4703 | 11-B |
| Q4704 | 11-D |
| Q4705 | 12-D |
| Q4706 | 17-B |
| Q4707 | 17-B |
| Q3201 | 16-B |


IC6001 Ⓢ STOP.
0.5V/0.2Usec. div.


TP6001 STOP.
2V/1Usec. div.


TP6003 STOP.
1V/5msec. div.


TP3201 STOP.
0.5V/20Usec. div.

SYSTEM CONTROL SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.6000 SERIES SCHEMATIC DIAGRAM···R6002
(R6002 IS ABBREVIATED TO R2)

SUB AUDIO SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.4700 SERIES SCHEMATIC DIAGRAM···R4702
(R4702 IS ABBREVIATED TO R2)

VJBS0251

UNLESS OTHERWISE SPECIFIED:
NPN TRANSISTORS ARE 2SD636(Q,R,S),
DIODES ARE MA165 AND
WATTAGE OF RESISTORS ARE 1/4W.

11 12 13 14 15 16 17 18 19

4-2
MAIN SCHEMATIC DIAGRAM
(SERVO SECTION)

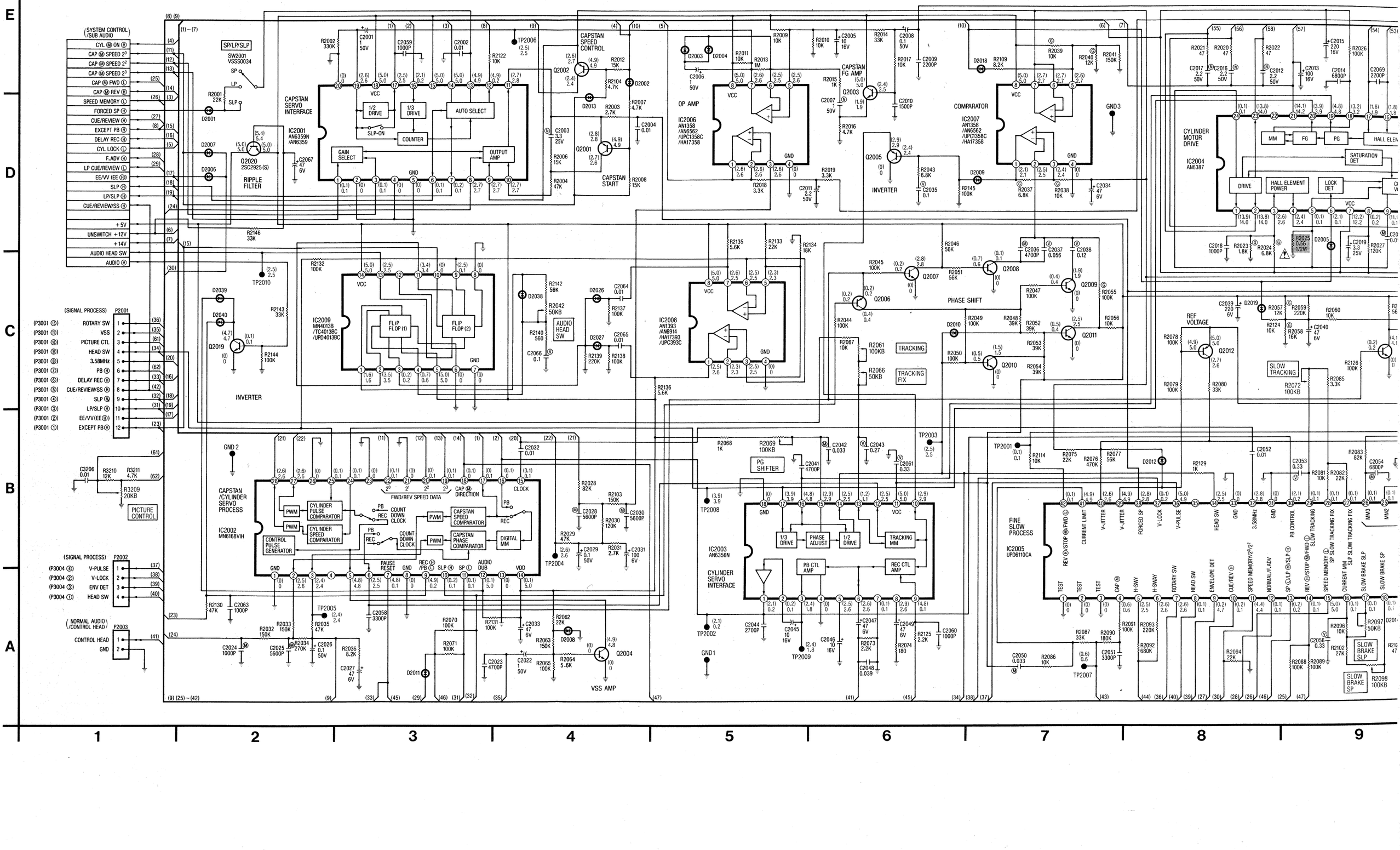
# MAIN SCHEMATIC DIAGRAM (SERVO SECTION)

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SE
ELECTROSTATICALLY SENSITIVE AND THEREFORE
HANDLING TECHNIQUES DESCRIBED UNDER THE "
(ES) DEVICES" SECTION OF THIS SERVICE MANU



NOTICE:
IFIED BY THE SIGN ⚠ HAVE
RISTICS IMPORTANT FOR SAFETY.
NY OF THESE COMPONENTS, USE
D PARTS.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

VOLTAGE MEASUREMENT:
1. CUE, REVIEW, FRAME ADVANCE, SLOW.
   COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
   COLOR BAR SIGNAL IN SP MODE.

★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

| SERVO | |
|---|---|
| Q2001 | 4-D |
| Q2002 | 4-E |
| Q2003 | 6-D |
| Q2004 | 4-A |
| Q2005 | 6-D |
| Q2006 | 6-C |
| Q2007 | 6-C |
| Q2008 | 7-C |
| Q2009 | 7-C |
| Q2010 | 7-C |
| Q2011 | 7-C |
| Q2012 | 8-C |
| Q2013 | 10-B |
| Q2014 | 10-B |
| Q2015 | 11-B |
| Q2018 | 9-C |
| Q2019 | 2-C |
| Q2020 | 2-D |

| REF.NO. / MODE | Q2001 | | | Q2002 | | | Q2003 | | | Q2004 | | | Q2005 | | | Q2006 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 0.1 | 0.3 | 0.8 | 0.1 | 1.2 | 0 | 1.9 | 2.4 | 5.0 | 0 | 0 | 4.8 | 3.8 | 3.3 | 0.1 | 0.1 | 0.1 | 0.4 |
| REC | 2.8 | 4.9 | 2.7 | 2.6 | 4.9 | 2.4 | 1.9 | 2.4 | 5.0 | 0 | 0 | 4.9 | 2.9 | 2.4 | 0 | 0.2 | 0.2 | 0.4 |
| PLAY | 2.8 | 4.9 | 2.6 | 2.7 | 4.9 | 2.4 | 1.9 | 2.5 | 5.0 | 0 | 0 | 4.8 | 2.9 | 2.4 | 0 | 0.2 | 0.2 | 0.4 |
| CUE | 2.7 | 4.9 | 2.6 | 2.6 | 4.9 | 2.3 | 1.9 | 2.4 | 5.0 | 0 | 0 | 4.8 | 2.9 | 2.3 | 0 | 4.1 | 4.2 | 0.4 |
| REV | 2.7 | 4.9 | 2.6 | 2.6 | 4.9 | 2.4 | 1.9 | 2.4 | 5.0 | 0 | 0 | 4.8 | 2.8 | 2.3 | 0 | 0.1 | 0.1 | 0.4 |
| SLOW(1/4) | 1.2 | 0.7 | 1.3 | 2.7 | 2.0 | 2.6 | 1.9 | 2.4 | 5.0 | 0 | 0 | 4.8 | 2.9 | 2.4 | 0 | 0.2 | 0.1 | 0.4 |
| F.A | 1.2 | 0.6 | 1.2 | 2.7 | 2.0 | 2.6 | 1.9 | 2.5 | 5.0 | 0 | 0 | 4.8 | 2.9 | 2.4 | 0 | 0.2 | 0.2 | 0.4 |

| REF.NO. / MODE | Q2007 | | | Q2008 | | | Q2009 | | | Q2010 | | | Q2011 | | | Q2012 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 0 | 0.1 | 2.8 | 0 | 0.6 | 0 | 0 | 0.4 | 0.1 | 0 | 0.2 | 2.8 | 0 | 0.6 | 0.1 | 5.0 | 4.9 | 1.9 |
| REC | 0 | 0.2 | 2.8 | 0.1 | 0.7 | 0 | 0 | 0.4 | 1.9 | 0 | 0.5 | 1.5 | 0 | 0.5 | 2.5 | 5.0 | 4.9 | 2.7 |
| PLAY | 0 | 0.2 | 2.8 | 0.1 | 0.6 | 0 | 0 | 0.4 | 1.9 | 0 | 0.5 | 1.5 | 0 | 0.4 | 2.5 | 5.0 | 5.0 | 2.6 |
| CUE | 0 | 0.7 | 0.1 | 0.1 | 0.7 | 0 | 0 | 0.4 | 1.8 | 0 | 0.5 | 1.5 | 0 | 0.4 | 2.5 | 5.0 | 2.6 | 4.9 |
| REV | 0 | 0.1 | 2.8 | 0 | 0.6 | 0 | 0 | 0.4 | 1.8 | 0 | 0.4 | 1.4 | 0 | 0.4 | 2.5 | 4.9 | 4.9 | 2.6 |
| SLOW(1/4) | 0 | 0.2 | 2.8 | 0.1 | 0.6 | 0 | 0 | 0.4 | 1.9 | 0 | 0.5 | 1.5 | 0 | 0.4 | 2.5 | 5.0 | 4.9 | 2.7 |
| F.A | 0 | 0.2 | 2.8 | 0.1 | 0.6 | 0 | 0 | 0.4 | 1.9 | 0 | 0.5 | 1.5 | 0 | 0.4 | 2.5 | 5.0 | 4.9 | 2.7 |

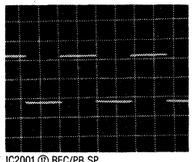
| REF.NO. / MODE | Q2013 | | | Q2014 | | | Q2015 | | | Q2018 | | | Q2019 | | | Q2020 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 11.3 | 11.8 | 14.2 | 14.2 | 14.2 | 11.8 | 0 | 0.1 | 14.2 | 0 | 0 | 0 | 0 | 0 | 4.7 | 5.0 | 5.4 | 5.0 |
| REC | 11.0 | 11.7 | 14.1 | 14.1 | 14.1 | 11.7 | 0 | 0.1 | 14.1 | 0 | 0.2 | 4.1 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |
| PLAY | 11.0 | 11.6 | 14.3 | 14.3 | 14.3 | 11.6 | 0 | 0.1 | 14.2 | 0 | 0.2 | 4.1 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |
| CUE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |
| REV | 13.5 | 14.2 | 14.2 | 14.2 | 13.5 | 14.2 | 0 | 0.7 | 0.1 | 0 | 0.2 | 4.7 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |
| SLOW(1/4) | 13.6 | 14.2 | 14.2 | 14.2 | 13.5 | 14.2 | 0 | 0.7 | 0.1 | 0 | 0.2 | 4.7 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |
| F.A | 13.6 | 14.2 | 14.2 | 14.2 | 13.5 | 14.2 | 0 | 0.7 | 0.1 | 0 | 0.2 | 4.7 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |

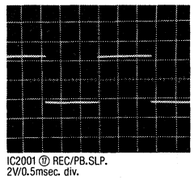
| REF.NO. / MODE | IC2001 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.8 | 4.8 | 4.8 | 4.9 | 4.9 | 0.1 | 0 | 4.9 | 0 | 0 |
| REC | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0.2 | 2.7 | 2.7 | 2.7 | 2.7 | 4.9 | 4.9 | 5.0 | 5.0 | 2.1 | 2.5 | 5.0 | 2.6 | 0 |
| PLAY | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0.1 | 2.7 | 2.7 | 2.7 | 2.8 | 0.2 | 4.9 | 5.0 | 5.0 | 0.2 | 2.5 | 5.0 | 2.6 | 0 |
| CUE | 0.1 | 0 | 5.0 | 0 | 0 | 0.2 | 0.2 | 2.7 | 2.7 | 2.7 | 2.7 | 0.2 | 4.9 | 5.0 | 5.0 | 0.3 | 2.3 | 5.0 | 2.6 | 0 |
| REV | 0 | 0 | 4.9 | 0 | 0 | 0.1 | 0.1 | 2.6 | 2.6 | 2.6 | 2.7 | 0.1 | 4.8 | 4.9 | 5.0 | 0.2 | 2.3 | 5.0 | 2.6 | 0 |
| SLOW(1/4) | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0.2 | 1.4 | 2.6 | 2.6 | 1.2 | 0.2 | 4.8 | 0.1 | 5.0 | 0.2 | ★ | 5.0 | 2.6 | 0 |
| F.A | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0.2 | 1.4 | 2.7 | 2.7 | 1.2 | 0.2 | 4.8 | 0.1 | 5.0 | 0.2 | ★ | 5.0 | 2.6 | 0 |

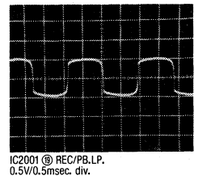
| REF.NO. / MODE | IC2002 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 0 | 0 | 2.5 | ★ | 4.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REC | 0 | 2.5 | 2.4 | ★ | 4.8 | 2.5 | 4.8 | 0 | 4.9 | 0.2 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 |
| PLAY | 0 | 2.6 | 2.4 | ★ | 4.8 | 2.5 | 0.1 | 0 | 0.2 | 0.1 | 0.1 | 5.0 | 0 | 5.0 | 0.1 | 0 | 0.1 | 0 | 0.1 | 0.1 |
| CUE | 0 | 0.1 | 0.1 | ★ | 0.1 | 0.1 | 0 | 0 | 0.1 | 0.1 | 0.1 | 4.9 | 0 | 5.0 | 1.7 | 0.3 | 2.4 | 0.1 | 0.1 | 5.0 |
| REV | 0 | 2.5 | 2.3 | ★ | 4.8 | 2.3 | 0 | 0 | 0 | 0.1 | 0.1 | 4.8 | 0 | 5.0 | 1.6 | 0.4 | 2.1 | 4.9 | 4.9 | 0 |
| SLOW(1/4) | 0 | 0.3 | 2.5 | ★ | 4.8 | 2.4 | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| F.A | 0 | 0.3 | 2.5 | ★ | 4.8 | 2.5 | 0.1 | 0 | 0.2 | 0.2 | 0.2 | 4.9 | 0 | 5.0 | 1.7 | 0.2 | 3.1 | 0.1 | 0.1 | 0.1 |

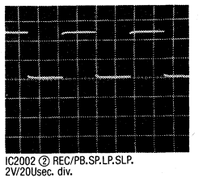
| REF.NO. / MODE | IC2002 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| STOP | 0 | 0 | 0 | 0 | 0 | 0 | 2.5 | 2.5 |
| REC | 0 | 0.1 | 0 | 0.1 | 0.1 | 0 | 2.6 | 2.6 |
| PLAY | 0 | 0.1 | 0 | 0.1 | 0.1 | 0 | 2.6 | 2.6 |
| CUE | 0 | 4.9 | 0 | 3.9 | 2.5 | 0 | 2.5 | 2.6 |
| REV | 0 | 4.8 | 0 | 3.8 | 2.5 | 0 | 2.5 | 2.5 |
| SLOW(1/4) | 0 | 0.1 | 0 | 3.9 | 2.5 | 0 | 2.7 | 2.5 |
| F.A | 0 | 0.1 | 0 | 3.9 | 2.5 | 0 | 2.6 | 2.6 |

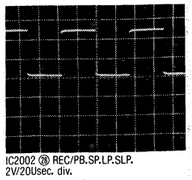
| REF.NO. / MODE | IC2003 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| STOP | 0.1 | 0.4 | 1.7 | 0 | 2.5 | 2.5 | 0 | 2.5 | 0 | 3.7 | 4.9 | 0 | 4.9 | 0 | 4.7 | 4.9 | 4.9 | 0 |
| REC | 2.1 | 0.2 | 2.4 | 0 | 2.5 | 2.6 | 0.1 | 2.9 | 4.8 | 2.9 | 5.0 | 2.5 | 1.2 | 2.5 | 2.9 | 4.8 | 3.9 | 0 |
| PLAY | 0.2 | 0.1 | 1.8 | 0 | 2.6 | 2.6 | 0.1 | 2.6 | 0.1 | 2.9 | 5.0 | 2.5 | 1.1 | 2.5 | 2.9 | 4.8 | 3.9 | 0 |
| CUE | 0.3 | −0.4 | 1.9 | 0 | 2.5 | 2.6 | 0.1 | 2.6 | 0.1 | 2.9 | 5.0 | 2.5 | 1.1 | 2.5 | 2.9 | 2.1 | 3.9 | 0 |
| REV | 0.4 | −0.5 | 1.8 | 0 | 2.5 | 2.5 | 0 | 2.5 | 0 | 2.8 | 5.0 | 2.4 | 1.1 | 2.5 | 2.9 | 4.8 | 3.8 | 0 |
| SLOW(1/4) | 0.1 | 0.4 | 1.8 | 0 | 2.6 | 2.6 | 0.1 | 2.6 | 0.1 | 2.9 | 5.0 | 2.5 | 1.2 | 2.5 | 2.9 | 4.8 | 3.9 | 0 |
| F.A | 0.2 | 0.4 | 1.8 | 0 | 2.5 | 2.6 | 0.1 | 2.6 | 0.1 | 2.9 | 5.0 | 2.4 | 1.2 | 2.5 | 1.5 | 4.8 | 3.9 | 0 |


IC2001 ⑰ REC/PB.SP.
2V/0.5msec. div.


IC2001 ⑰ REC/PB.SLP.
2V/0.5msec. div.


IC2001 ⑱ REC/PB.LP.
0.5V/0.5msec. div.


IC2002 ② REC/PB.SP.LP.SLP.
2V/20Usec. div.


IC2002 ㉘ REC/PB.SP.LP.SLP.
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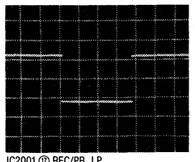
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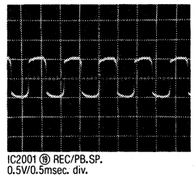
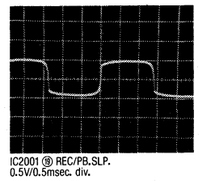
2V/0.5msec. div.


IC2001 ⑱ REC/PB.SP.
0.5V/0.5msec. div.


IC2001 ⑲ REC/PB.SLP.
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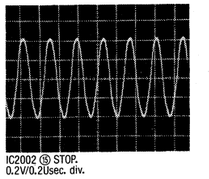
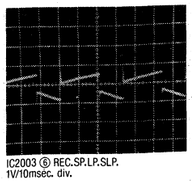
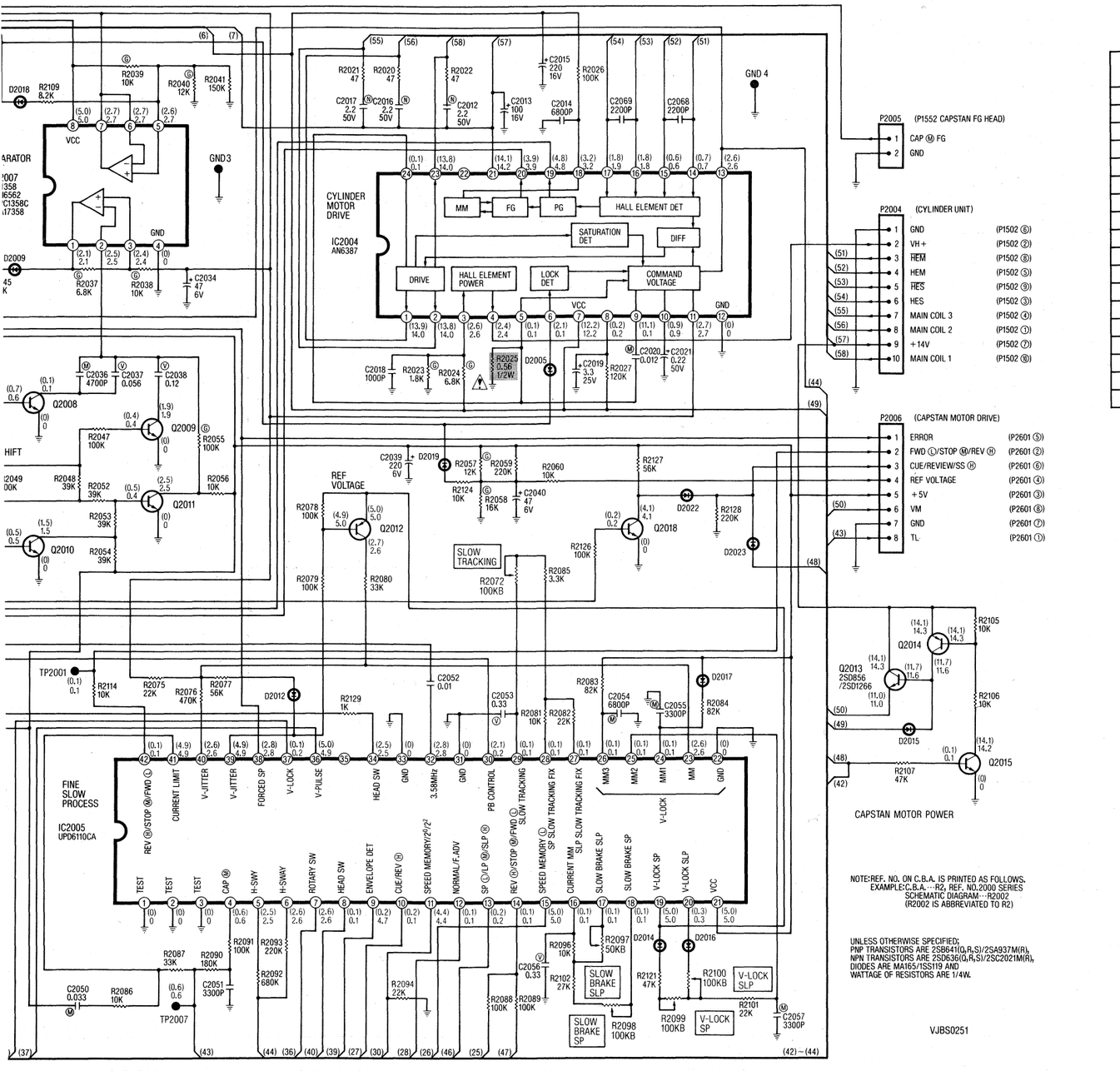

IC2002 ⑮ STOP.
0.2V/0.2Usec. div.


IC2003 ⑤ REC.SP.LP.SLP.
1V/10msec. div.




7 8 9 10 11

VOLTAGE MEASUREMENT:
1. CUE, REVIEW, FRAME ADVANCE, SLOW.
COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
COLOR BAR SIGNAL IN SP MODE.

★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

| SERVO | |
|---|---|
| Q2001 | 4-D |
| Q2002 | 4-E |
| Q2003 | 6-D |
| Q2004 | 4-A |
| Q2005 | 6-D |
| Q2006 | 6-C |
| Q2007 | 6-C |
| Q2008 | 7-C |
| Q2009 | 7-C |
| Q2010 | 7-C |
| Q2011 | 7-C |
| Q2012 | 8-C |
| Q2013 | 10-B |
| Q2014 | 10-B |
| Q2015 | 11-B |
| Q2018 | 9-C |
| Q2019 | 2-C |
| Q2020 | 2-D |

P2005 (P1552 CAPSTAN FG HEAD)

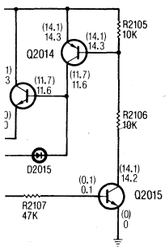
| | | |
|---|---|---|
| 1 | CAP Ⓜ FG | |
| 2 | GND | |

P2004 (CYLINDER UNIT)

| | | |
|---|---|---|
| 1 | GND | (P1502 ⑥) |
| 2 | VH+ | (P1502 ②) |
| 3 | HEM | (P1502 ⑧) |
| 4 | HEM | (P1502 ③) |
| 5 | HES | (P1502 ⑨) |
| 6 | HES | (P1502 ③) |
| 7 | MAIN COIL 3 | (P1502 ③) |
| 8 | MAIN COIL 2 | (P1502 ①) |
| 9 | +14V | (P1502 ⑦) |
| 10 | MAIN COIL 1 | (P1502 ⑩) |

P2006 (CAPSTAN MOTOR DRIVE)

| | | |
|---|---|---|
| 1 | ERROR | (P2601 ⑤) |
| 2 | FWD Ⓛ/STOP Ⓜ/REV Ⓗ | (P2601 ②) |
| 3 | CUE/REVIEW/SS Ⓗ | (P2601 ⑥) |
| 4 | REF VOLTAGE | (P2601 ④) |
| 5 | +5V | (P2601 ③) |
| 6 | VM | (P2601 ⑧) |
| 7 | GND | (P2601 ⑦) |
| 8 | TL | (P2601 ①) |




AN MOTOR POWER

. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
AMPLE:C.B.A.···R2, REF. NO.2000 SERIES
SCHEMATIC DIAGRAM···R2002
(R2002 IS ABBREVIATED TO R2)

OTHERWISE SPECIFIED;
NSISTORS ARE 2SB641(Q,R,S)/2SA937M(R),
NSISTORS ARE 2SD636(Q,R,S)/2SC2021M(R),
RE MA165/1SS119 AND
OF RESISTORS ARE 1/4W.

VJBS0251

| REF.NO. / MODE | Q2001 | | | Q2002 | | | Q2003 | | | Q2004 | | | Q2005 | | | Q2006 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 0.1 | 0.3 | 0.8 | 0.1 | 1.2 | 0 | 1.9 | 2.4 | 5.0 | 0 | 0 | 4.8 | 3.8 | 3.3 | 0.1 | 0.1 | 0.1 | 0.4 |
| REC | 2.8 | 4.9 | 2.7 | 2.6 | 4.9 | 2.4 | 1.9 | 2.4 | 5.0 | 0 | 0 | 4.9 | 2.9 | 2.4 | 0 | 0.2 | 0.2 | 0.4 |
| PLAY | 2.8 | 4.9 | 2.6 | 2.7 | 4.9 | 2.4 | 1.9 | 2.5 | 5.0 | 0 | 0 | 4.8 | 2.9 | 2.4 | 0 | 0.2 | 0.2 | 0.4 |
| CUE | 2.7 | 4.9 | 2.6 | 2.6 | 4.9 | 2.3 | 1.9 | 2.4 | 5.0 | 0 | 0 | 4.8 | 2.9 | 2.3 | 0 | 4.1 | 4.2 | 0.4 |
| REV | 2.7 | 4.9 | 2.6 | 2.6 | 4.9 | 2.4 | 1.9 | 2.4 | 5.0 | 0 | 0 | 4.8 | 2.8 | 2.3 | 0 | 0.1 | 0.1 | 0.4 |
| SLOW(1/4) | 1.2 | 0.7 | 1.3 | 2.7 | 2.0 | 2.6 | 1.9 | 2.4 | 5.0 | 0 | 0 | 4.8 | 2.9 | 2.4 | 0 | 0.2 | 0.1 | 0.4 |
| F.A | 1.2 | 0.6 | 1.2 | 2.7 | 2.0 | 2.6 | 1.9 | 2.5 | 5.0 | 0 | 0 | 4.8 | 2.9 | 2.4 | 0 | 0.2 | 0.2 | 0.4 |
| REF.NO. / MODE | Q2007 | | | Q2008 | | | Q2009 | | | Q2010 | | | Q2011 | | | Q2012 | | |
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 0 | 0.1 | 2.8 | 0 | 0.6 | 0 | 0 | 0.4 | 0.1 | 0 | 0.2 | 2.8 | 0 | 0.6 | 0.1 | 5.0 | 4.9 | 1.9 |
| REC | 0 | 0.2 | 2.8 | 0.1 | 0.7 | 0 | 0 | 0.4 | 1.9 | 0 | 0.5 | 1.5 | 0 | 0.5 | 2.5 | 5.0 | 4.9 | 2.7 |
| PLAY | 0 | 0.2 | 2.8 | 0.1 | 0.6 | 0 | 0 | 0.4 | 1.9 | 0 | 0.5 | 1.5 | 0 | 0.4 | 2.5 | 5.0 | 5.0 | 2.6 |
| CUE | 0 | 0.7 | 0.1 | 0.1 | 0.7 | 0 | 0 | 0.4 | 1.8 | 0 | 0.5 | 1.5 | 0 | 0.4 | 2.5 | 5.0 | 2.6 | 4.9 |
| REV | 0 | 0.1 | 2.8 | 0 | 0.6 | 0 | 0 | 0.4 | 1.8 | 0 | 0.4 | 1.4 | 0 | 0.4 | 2.5 | 4.9 | 4.9 | 2.6 |
| SLOW(1/4) | 0 | 0.2 | 2.8 | 0.1 | 0.6 | 0 | 0 | 0.4 | 1.9 | 0 | 0.5 | 1.5 | 0 | 0.4 | 2.5 | 5.0 | 4.9 | 2.7 |
| F.A | 0 | 0.2 | 2.8 | 0.1 | 0.6 | 0 | 0 | 0.4 | 1.9 | 0 | 0.5 | 1.5 | 0 | 0.4 | 2.5 | 5.0 | 4.9 | 2.7 |
| REF.NO. / MODE | Q2013 | | | Q2014 | | | Q2015 | | | Q2018 | | | Q2019 | | | Q2020 | | |
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 11.3 | 11.8 | 14.2 | 14.2 | 14.2 | 11.8 | 0 | 0.1 | 14.2 | 0 | 0 | 0 | 0 | 0 | 4.7 | 5.0 | 5.4 | 5.0 |
| REC | 11.0 | 11.7 | 14.1 | 14.1 | 14.1 | 11.7 | 0 | 0.1 | 14.1 | 0 | 0.2 | 4.1 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |
| PLAY | 11.0 | 11.6 | 14.3 | 14.3 | 14.3 | 11.6 | 0 | 0.1 | 14.2 | 0 | 0.2 | 4.1 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |
| CUE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |
| REV | 13.5 | 14.2 | 14.2 | 14.2 | 13.5 | 14.2 | 0 | 0.7 | 0.1 | 0 | 0.2 | 4.7 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |
| SLOW(1/4) | 13.6 | 14.2 | 14.2 | 14.2 | 13.5 | 14.2 | 0 | 0.7 | 0.1 | 0 | 0.2 | 4.7 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |
| F.A | 13.6 | 14.2 | 14.2 | 14.2 | 13.5 | 14.2 | 0 | 0.7 | 0.1 | 0 | 0.2 | 4.7 | 0 | 0.1 | 4.7 | 5.0 | 5.4 | 5.0 |

| REF.NO. / MODE | IC2001 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.8 | 4.8 | 4.8 | 4.9 | 4.9 | 0.1 | 0 | 4.9 | 0 | 0 |
| REC | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0.2 | 2.7 | 2.7 | 2.7 | 2.7 | 4.9 | 4.9 | 5.0 | 5.0 | 2.1 | 2.5 | 5.0 | 2.6 | 0 |
| PLAY | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0.1 | 2.7 | 2.7 | 2.7 | 2.8 | 0.2 | 4.9 | 5.0 | 5.0 | 0.2 | 2.5 | 5.0 | 2.6 | 0 |
| CUE | 0.1 | 0 | 5.0 | 0 | 0 | 0.2 | 0.2 | 2.7 | 2.7 | 2.7 | 2.7 | 0.2 | 4.9 | 5.0 | 5.0 | 0.3 | 2.3 | 5.0 | 2.6 | 0 |
| REV | 0 | 0 | 4.9 | 0 | 0 | 0.1 | 0.1 | 2.6 | 2.6 | 2.6 | 2.7 | 0.1 | 4.8 | 4.9 | 5.0 | 0.2 | 2.3 | 5.0 | 2.6 | 0 |
| SLOW(1/4) | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0.2 | 1.4 | 2.6 | 2.6 | 1.2 | 0.2 | 4.8 | 0.1 | 5.0 | 0.2 | ★ | 5.0 | 2.6 | 0 |
| F.A | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0.2 | 1.4 | 2.7 | 2.7 | 1.2 | 0.2 | 4.8 | 0.1 | 5.0 | 0.2 | ★ | 5.0 | 2.6 | 0 |

| REF.NO. / MODE | IC2002 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 0 | 0 | 2.5 | ★ | 4.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REC | 0 | 2.5 | 2.4 | ★ | 4.8 | 2.5 | 4.8 | 0 | 4.9 | 0.2 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 |
| PLAY | 0 | 2.6 | 2.4 | ★ | 4.8 | 2.5 | 0.1 | 0 | 0.2 | 0.1 | 0.1 | 5.0 | 0 | 5.0 | 0.1 | 0 | 0.1 | 0 | 0.1 | 0.1 |
| CUE | 0 | 0.1 | 0.1 | ★ | 0.1 | 0.1 | 0 | 0 | 0.1 | 0.1 | 0.1 | 4.9 | 0 | 5.0 | 1.7 | 0.3 | 2.4 | 0.1 | 0.1 | 5.0 |
| REV | 0 | 2.5 | 2.3 | ★ | 4.8 | 2.3 | 0 | 0 | 0 | 0.1 | 0.1 | 4.8 | 0 | 5.0 | 1.6 | 0.4 | 2.1 | 4.9 | 4.9 | 0 |
| SLOW(1/4) | 0 | 0.3 | 2.5 | ★ | 4.8 | 2.4 | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| F.A | 0 | 0.3 | 2.5 | ★ | 4.8 | 2.5 | 0.1 | 0 | 0.2 | 0.2 | 0.2 | 4.9 | 0 | 5.0 | 1.7 | 0.2 | 3.1 | 0.1 | 0.1 | 0.1 |

| REF.NO. / MODE | IC2002 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| STOP | 0 | 0 | 0 | 0 | 0 | 0 | 2.5 | 2.5 |
| REC | 0 | 0.1 | 0 | 0.1 | 0.1 | 0 | 2.6 | 2.6 |
| PLAY | 0 | 0.1 | 0 | 0.1 | 0.1 | 0 | 2.6 | 2.6 |
| CUE | 0 | 4.9 | 0 | 3.9 | 2.5 | 0 | 2.5 | 2.6 |
| REV | 0 | 4.8 | 0 | 3.8 | 2.5 | 0 | 2.5 | 2.5 |
| SLOW(1/4) | 0 | 0.1 | 0 | 3.9 | 2.5 | 0 | 2.7 | 2.5 |
| F.A | 0 | 0.1 | 0 | 3.9 | 2.5 | 0 | 2.6 | 2.6 |

| REF.NO. / MODE | IC2003 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| STOP | 0.1 | 0.4 | 1.7 | 0 | 2.5 | 2.5 | 0 | 2.5 | 0 | 3.7 | 4.9 | 0 | 4.9 | 0 | 4.7 | 4.9 | 4.9 | 0 |
| REC | 2.1 | 0.2 | 2.4 | 0 | 2.5 | 2.6 | 0.1 | 2.9 | 4.8 | 2.9 | 5.0 | 2.5 | 1.2 | 2.5 | 2.9 | 4.8 | 3.9 | 0 |
| PLAY | 0.2 | 0.1 | 1.8 | 0 | 2.6 | 2.6 | 0.1 | 2.6 | 0.1 | 2.9 | 5.0 | 2.5 | 1.1 | 2.5 | 2.9 | 4.8 | 3.9 | 0 |
| CUE | 0.3 | −0.4 | 1.9 | 0 | 2.5 | 2.6 | 0.1 | 2.6 | 0.1 | 2.9 | 5.0 | 2.5 | 1.1 | 2.5 | 2.9 | 2.1 | 3.9 | 0 |
| REV | 0.4 | −0.5 | 1.8 | 0 | 2.5 | 2.5 | 0 | 2.5 | 0 | 2.8 | 5.0 | 2.4 | 1.1 | 2.5 | 2.9 | 4.8 | 3.8 | 0 |
| SLOW(1/4) | 0.1 | 0.4 | 1.8 | 0 | 2.6 | 2.6 | 0.1 | 2.6 | 0.1 | 2.9 | 5.0 | 2.5 | 1.2 | 2.5 | 2.9 | 4.8 | 3.9 | 0 |
| F.A | 0.2 | 0.4 | 1.8 | 0 | 2.5 | 2.6 | 0.1 | 2.6 | 0.1 | 2.9 | 5.0 | 2.4 | 1.2 | 2.5 | 1.5 | 4.8 | 3.9 | 0 |

| REF.NO. / MODE | IC2004 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 14.2 | 14.2 | 2.5 | 2.3 | 0 | 0.6 | 12.1 | 0.1 | 11.8 | 0.7 | 1.8 | 0 | 1.1 | 0.5 | 0.6 | 1.6 | 1.8 | 0.2 | 4.9 | 4.9 |
| REC | 13.9 | 13.8 | 2.6 | 2.4 | 0.1 | 2.1 | 12.2 | 0.2 | 11.1 | 0.9 | 2.7 | 0 | 2.6 | 0.7 | 0.6 | 1.8 | 1.8 | 3.2 | 4.8 | 3.9 |
| PLAY | 14.0 | 14.0 | 2.6 | 2.4 | 0.1 | 0.1 | 12.2 | 0.2 | 0.1 | 0.9 | 2.7 | 0 | 2.6 | 0.7 | 0.6 | 1.8 | 1.9 | 3.2 | 4.8 | 3.9 |
| CUE | 14.0 | 14.0 | 2.6 | 2.4 | 0.1 | 2.0 | 12.2 | 0.2 | 11.2 | 0.9 | 2.6 | 0 | 2.6 | 0.7 | 0.6 | 1.8 | 1.8 | 3.2 | 4.8 | 3.9 |
| REV | 14.0 | 14.0 | 2.6 | 2.3 | 0.1 | 2.0 | 12.1 | 0.1 | 11.0 | 0.9 | 2.6 | 0 | 2.6 | 0.6 | 0.6 | 1.8 | 1.8 | 3.2 | 4.8 | 3.8 |
| SLOW(1/4) | 14.0 | 14.0 | 2.6 | 2.4 | 0.1 | 2.1 | 12.2 | 0.2 | 11.2 | 0.9 | 2.6 | 0 | 2.6 | 0.7 | 0.6 | 1.8 | 1.8 | 3.2 | 4.8 | 3.9 |
| F.A | 14.0 | 14.0 | 2.6 | 2.4 | 0.1 | 2.1 | 12.3 | 0.2 | 11.2 | 0.9 | 2.6 | 0 | 2.6 | 0.7 | 0.6 | 1.8 | 1.8 | 3.2 | 4.8 | 3.9 |

| REF.NO. / MODE | IC2004 | | | |
|---|---|---|---|---|
| | 21 | 22 | 23 | 24 |
| STOP | 14.2 | ★ | 14.2 | 0 |
| REC | 14.1 | ★ | 13.8 | 0.1 |
| PLAY | 14.2 | ★ | 14.0 | 0.1 |
| CUE | 14.2 | ★ | 14.0 | 0.1 |
| REV | 14.2 | ★ | 14.0 | 0.1 |
| SLOW(1/4) | 14.2 | ★ | 14.0 | 0.1 |
| F.A | 14.2 | ★ | 14.0 | 0.1 |

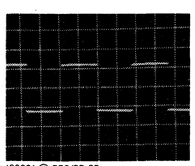
| REF.NO. / MODE | IC2005 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 0 | 0 | 0 | 0.5 | 1.0 | 1.0 | 4.9 | 0 | 0 | 0.2 | 4.2 | 0 | 0.1 | 2.2 | 4.9 | 0 | 0 | 0 | 4.9 | 0.2 |
| REC | 0 | 0 | 0 | 0.6 | 2.5 | 2.6 | 2.6 | 0.1 | 0.2 | 0.2 | 4.4 | 0.1 | 0.2 | 0.1 | 5.0 | 0.1 | 0.1 | 0.1 | 5.0 | 0.3 |
| PLAY | 0 | 0 | 0 | 0.6 | 2.5 | 2.6 | 2.6 | 0.1 | 4.7 | 0.1 | 4.4 | 0.1 | 0.2 | 0.1 | 5.0 | 0.1 | 0.1 | 0.1 | 5.0 | 0.3 |
| CUE | 0 | 0 | 0 | 0.6 | 2.5 | 2.5 | 2.1 | 2.5 | 2.5 | 4.9 | 4.4 | 0.1 | 0.2 | 0.1 | 5.0 | 0.1 | 0.1 | 0.1 | 5.0 | 0.3 |
| REV | 0 | 0 | 0 | 0.5 | 2.4 | 2.5 | 2.0 | 2.6 | 2.3 | 4.9 | 4.3 | 0 | 0.1 | 4.5 | 4.9 | 0 | 0 | 0 | 4.9 | 0.2 |
| SLOW(1/4) | 0 | 0 | 0 | ★ | 2.5 | 2.3 | 0.3 | 2.3 | 2.4 | 0.2 | 0.1 | ★ | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 5.0 | 0.3 |
| F.A | 0 | 0 | 0 | ★ | 2.5 | 2.5 | 0.1 | 2.3 | 2.5 | 0.3 | 0.1 | ★ | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | 5.0 | 0.3 |

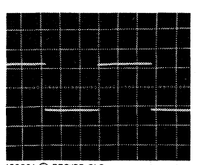
| REF.NO. / MODE | IC2005 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| STOP | 5.0 | 0 | 1.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.8 | 0 | 0 | ★ | 4.9 | 0 | 0.8 | 4.9 | 1.7 |
| REC | 5.0 | 0 | 2.6 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 2.1 | 0 | 2.8 | 0 | 2.5 | ★ | 5.0 | 0.1 | 2.8 | 4.9 | 2.6 |
| PLAY | 5.0 | 0 | 2.6 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0 | 2.8 | 0 | 2.5 | ★ | 4.9 | 0.2 | 2.8 | 4.9 | 2.6 |
| CUE | 5.0 | 0 | 2.6 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | 0 | 2.8 | 0 | 2.5 | ★ | 4.9 | 0.3 | 2.7 | 4.9 | 2.5 |
| REV | 5.0 | 0 | 2.6 | 0.1 | 0 | 0.1 | 0 | 0 | 0 | 0.2 | 0 | 2.8 | 0 | 2.5 | ★ | 4.8 | 0.3 | 2.7 | 0 | 2.5 |
| SLOW(1/4) | 5.0 | 0 | 2.7 | 0.1 | 0.1 | 0.1 | 0.3 | 0.3 | 0.1 | 0.2 | 0 | 2.8 | 0 | 2.5 | ★ | 4.8 | 0.3 | 0.4 | 4.7 | 2.4 |
| F.A | 5.0 | 0 | 2.7 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.1 | 0.2 | 0 | 2.8 | 0 | 2.5 | ★ | 4.9 | 0.3 | 0.4 | 4.6 | 2.4 |

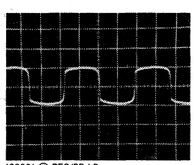
| REF.NO. / MODE | IC2005 | | IC2006 | | | | | | | | IC2007 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 41 | 42 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| STOP | 4.9 | 2.1 | 1.1 | 1.1 | 1.0 | 0 | 2.5 | 2.5 | 2.5 | 4.9 | 3.7 | 0 | 2.9 | 0 | 1.8 | 1.8 | 1.8 | 5.0 | | |
| REC | 4.9 | 0.1 | 2.6 | 2.6 | 2.6 | 0 | 2.5 | 2.5 | 2.6 | 5.0 | 2.1 | 2.5 | 2.4 | 0 | 2.6 | 2.7 | 2.7 | 5.0 | | |
| PLAY | 4.9 | 0.1 | 2.6 | 2.6 | 2.6 | 0 | 2.6 | 2.5 | 2.6 | 5.0 | 2.1 | 2.5 | 2.4 | 0 | 2.7 | 2.7 | 2.7 | 5.0 | | |
| CUE | 4.9 | 0.1 | 2.6 | 2.6 | 2.6 | 0 | 2.6 | 2.5 | 2.6 | 5.0 | 2.1 | 2.5 | 2.3 | 0 | 2.7 | 2.7 | 2.7 | 5.0 | | |
| REV | 4.9 | 4.9 | 2.6 | 2.6 | 2.5 | 0 | 2.5 | 2.5 | 2.5 | 4.9 | 2.1 | 2.4 | 2.3 | 0 | 2.6 | 2.6 | 2.6 | 5.0 | | |
| SLOW(1/4) | ★ | ★ | 2.6 | 2.6 | 2.6 | 0 | 2.5 | 2.5 | 2.5 | 5.0 | 2.1 | 2.5 | 2.3 | 0 | 2.6 | 2.7 | 2.7 | 5.0 | | |
| F.A | ★ | ★ | 2.6 | 2.6 | 2.6 | 0 | 2.5 | 2.5 | 2.5 | 5.0 | 2.1 | 2.5 | 2.3 | 0 | 2.7 | 2.7 | 2.7 | 5.0 | | |

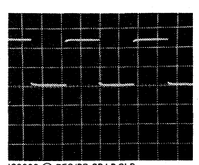
| REF.NO. / MODE | IC2008 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| STOP | 0 | 2.3 | 0.1 | 0 | 2.3 | 0.1 | 4.9 | 5.0 |
| REC | 2.5 | 2.3 | 2.5 | 0 | 2.3 | 2.5 | 2.6 | 5.0 |
| PLAY | 2.6 | 2.3 | 2.5 | 0 | 2.3 | 2.5 | 2.5 | 5.0 |
| CUE | 2.6 | 2.3 | 2.5 | 0 | 2.3 | 2.5 | 2.5 | 5.0 |
| REV | 2.5 | 2.3 | 2.5 | 0 | 2.3 | 2.5 | 2.5 | 5.0 |
| SLOW(1/4) | 2.5 | 2.3 | 2.5 | 0 | 2.3 | 2.5 | 2.5 | 5.0 |
| F.A | 2.5 | 2.3 | 2.5 | 0 | 2.3 | 2.5 | 2.5 | 5.0 |

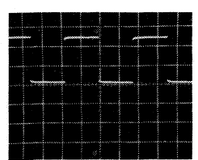
| REF.NO. / MODE | IC2009 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| STOP | 0 | 5.0 | 0 | 0 | 5.0 | 0 | 0 | 0 | 0 | 0 | 4.9 | ★ | 0 | 5.0 |
| REC | 1.6 | 3.5 | 0.2 | 0.7 | 5.0 | 0 | 0 | 0 | 2.5 | 0 | 3.4 | ★ | 2.5 | 5.0 |
| PLAY | 1.6 | 3.5 | 0.2 | 0.6 | 5.0 | 0 | 0 | 0 | 0.1 | 0 | 3.4 | ★ | 2.5 | 5.0 |
| CUE | 1.7 | 3.4 | 0.3 | 0.7 | 5.0 | 0 | 0 | 0 | 2.5 | 0 | 3.4 | ★ | 2.5 | 5.0 |
| REV | 1.6 | 3.5 | 0.2 | 0.6 | 4.9 | 0 | 0 | 0 | 2.5 | 0 | 3.4 | ★ | 2.5 | 5.0 |
| SLOW(1/4) | 1.6 | 3.4 | 0.3 | 0.6 | 5.0 | 0 | 0 | 0 | 2.5 | 0 | 3.4 | ★ | 2.5 | 5.0 |
| F.A | 1.6 | 3.4 | 0.2 | 0.6 | 5.0 | 0 | 0 | 0 | 2.5 | 0 | 3.4 | ★ | 2.5 | 5.0 |

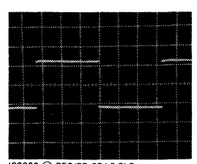

IC2001 ⑰ REC/PB.SP.
2V/0.5msec. div.

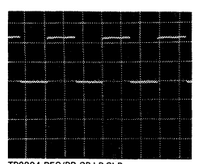

IC2001 ⑰ REC/PB.SLP.
2V/0.5msec. div.

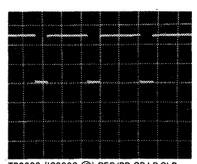

IC2001 ⑮ REC/PB.LP.
0.5V/0.5msec. div.

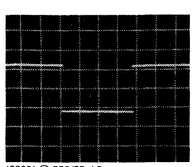

IC2002 ② REC/PB.SP.LP.SLP.
2V/20Usec. div.


IC2002 ㉘ REC/PB.SP.LP.SLP.
2V/20Usec. div.


IC2003 ⑭ REC/PB.SP.LP.SLP.
2V/10msec. div.

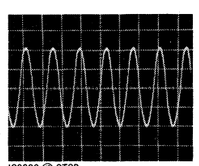

TP2004 REC/PB.SP.LP.SLP.
2V/0.1msec. div.


TP2008 (IC2003 ⑰) REC/PB.SP.LP.SLP.
2V/2msec. div.

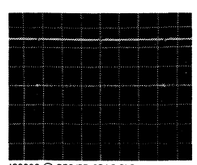

IC2001 ⑰ REC/PB. LP.
2V/0.5msec. div.

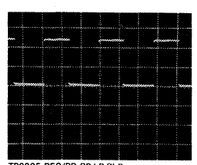
IC2001 ⑱ REC/PB.SP.
0.5V/0.5msec. div.

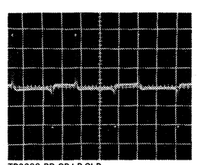
IC2001 ⑲ REC/PB.SLP.
0.5V/0.5msec. div.


IC2002 ⑮ STOP.
0.2V/0.2Usec. div.

IC2003 ⑤ REC.SP.LP.SLP.
1V/10msec. div.


IC2003 ⑱ REC/PB.SP.LP.SLP.
2V/10msec. div.


TP2005 REC/PB.SP.LP.SLP.
2V/0.1msec. div.


TP2009 PB.SP.LP.SLP.
0.5V/10msec. div.

# IC6001 MATRIX CHART

IC6001 KEY MATRIX

| DATA IN | SCAN OUT | | |
|---|---|---|---|
| PIN NO. | 59 (SCAN 2) | 58 (SCAN 1) | |
| 23 (DATA 5) | SAFETY TAB | CASSETTE UP | ←——— |
| 24 (DATA 6) | CASSETTE DOWN | CASSETTE IN | SLP Ⓗ |
| 25 (DATA 7) | ——— | ——— | LP/SLP Ⓗ |
| 26 (DATA 8) | FF/CUE | PLAY | AUDIO DUB Ⓛ |
| 27 (DATA 9) | REW /REVIEW | REC | COUNTER RESET Ⓛ |
| 28 (DATA 10) | SLOW/FA | EJECT | MEMORY COUNTER Ⓛ |
| 29 (DATA 11) | STOP | PAUSE/STILL | POWER Ⓛ |

IC6001 SAFETY DEVICE

| SENSOR LED PULSE | DATA IN | | |
|---|---|---|---|
| PIN NO. | 18 (DATA 1) | 19 (DATA 2) | 20 (DATA 3) |
| 60("H"LEVEL) | DEW Ⓛ | REMOTE PAUSE Ⓛ | CYLINDER LOCK Ⓛ |
| 60("L"LEVEL) | TAKEUP PHOTO TR Ⓛ | SUPPLY PHOTO TR Ⓛ | AUTO STOP Ⓛ |

IC6001 MODE SELECT SWITCH POSITION CODE

| DATA IN / MODE SWITCH POSITION | PIN 2 (POSITION 2) | PIN 4 (POSITION 1) | PIN 3 (POSITION 3) |
|---|---|---|---|
| EJECT | L | H | H |
| STOP | H | L | H |
| FF/REW | H | L | H |
| REC/PAUSE | H | L | L |
| REVIEW | H | L | L |
| PLAY | L | H | L |

| REF.NO. / MODE | Q6003 | | | Q6004 | | | Q6005 | | | Q6006 | | | Q6007 | | | Q6010 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 0 | 0.1 | 5.0 | 0.8 | 0.5 | 4.1 | 0 | 0.7 | 0.1 | 0 | 0.1 | 10.2 | 0 | 0.1 | 4.0 | 5.0 | 5.0 | 0.1 |
| FF | 0 | 0.1 | 0.1 | 0.8 | 0.5 | 4.1 | 0 | 0.5 | 2.6 | 0 | 0 | 10.1 | 0 | 0.1 | 0.1 | 5.0 | 5.0 | 0.2 |
| REW | 0 | 0.1 | 5.0 | 0.8 | 0.5 | 4.1 | 0 | 0.5 | 2.6 | 0 | 0.2 | 10.3 | 0 | 0.2 | 4.1 | 5.0 | 5.0 | 0.2 |
| REC | 0 | 0.1 | 5.0 | 0.8 | 0.5 | 4.1 | 0 | ★ | ★ | 0 | 0.1 | 10.2 | 0 | 0.2 | 4.1 | 5.0 | 5.0 | 0.2 |
| PLAY | 0 | 0.1 | 5.0 | 0.8 | 0.5 | 4.1 | 0 | ★ | ★ | 0 | 0.1 | 10.2 | 0 | 0.2 | 4.0 | 5.0 | 5.0 | 0.1 |
| CUE | 0 | 0 | 4.9 | 0.8 | 0.5 | 4.1 | 0 | 0.4 | 2.5 | 0 | 0.1 | 10.2 | 0 | 0.1 | 4.0 | 5.0 | 4.9 | 0.1 |
| REV | 0 | 0.1 | 5.0 | 0.8 | 0.5 | 4.1 | 0 | 0.4 | ★ | 0 | 0.1 | 10.2 | 0 | 0.1 | 4.0 | 5.0 | 4.9 | 0.1 |
| SLOW(1/4) | 0 | 0.1 | 4.9 | 0.8 | 0.5 | 4.1 | 0 | 0.2 | 4.9 | 0 | 0.1 | 10.2 | 0 | 0.1 | 4.0 | 5.0 | 5.0 | 0.1 |
| F.A | 0 | 0 | 5.0 | 0.8 | 0.5 | 4.1 | 0 | 0.7 | 4.9 | 0 | 0.1 | 10.2 | 0 | 0.2 | 4.0 | 5.0 | 5.0 | 0.1 |

| REF.NO. / MODE | Q6011 | | | Q6012 | | | Q6014 | | | Q6016 | | | Q6020 | | | Q6021 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 5.0 | 5.0 | 0.1 | 5.0 | 4.9 | 0.5 | 0 | 0 | 8.2 | 0 | 0.1 | 5.0 | 5.0 | 0.1 | 0.2 | 5.0 | 4.9 | 3.4 |
| FF | 5.0 | 5.0 | 0.2 | 5.0 | 4.9 | 0.5 | 0.1 | 0.1 | 8.2 | 0.1 | 0.1 | 5.0 | 5.0 | 0.1 | 0.1 | 5.0 | 4.5 | 3.5 |
| REW | 5.0 | 5.0 | 0.2 | 5.0 | 4.9 | 0.6 | 0.1 | 0.1 | 0.1 | 0 | 0.1 | 5.0 | 5.0 | 0.1 | 4.9 | 5.0 | 4.5 | 3.4 |
| REC | 5.0 | 5.0 | 0.2 | 5.0 | 4.9 | 0.5 | 0.1 | 0.1 | 8.3 | 0.1 | 0.1 | 5.0 | 0.1 | 0.1 | 0.1 | 5.0 | 4.5 | 3.4 |
| PLAY | 5.0 | 5.0 | 0.2 | 5.0 | 4.9 | 0.6 | 0.1 | 0.1 | 8.3 | 0.1 | 0.1 | 5.0 | 0.1 | 0.1 | 0.1 | 5.0 | 4.5 | 3.4 |
| CUE | 5.0 | 5.0 | 0.2 | 5.0 | 4.9 | 0.5 | 0 | 0.1 | 8.2 | 4.3 | 4.9 | 5.0 | 0.1 | 0.1 | 0.1 | 5.0 | 4.5 | 3.4 |
| REV | 5.0 | 5.0 | 0.2 | 5.0 | 4.9 | 0.6 | 0.1 | 0.1 | 8.2 | 4.3 | 4.9 | 5.0 | 0.1 | 0.1 | 4.9 | 5.0 | 4.4 | 3.4 |
| SLOW(1/4) | 5.0 | 5.0 | 0.2 | 5.0 | 4.9 | 0.5 | 0.1 | 0.1 | 8.3 | 4.3 | 4.9 | 5.0 | 0.1 | 0.1 | 0.1 | 4.9 | 4.4 | 3.4 |
| F.A | 5.0 | 5.0 | 0.2 | 5.0 | 4.9 | 0.6 | 0.1 | 0.1 | 8.2 | 4.3 | 4.9 | 5.0 | 0.1 | 0.1 | 0.1 | 4.9 | 4.4 | 3.4 |

| REF.NO. / MODE | Q6199 | | | Q3201 | | |
|---|---|---|---|---|---|---|
| | E | B | C | E | B | C |
| STOP | 5.0 | 2.5 | 2.2 | 0 | 0.7 | 0.1 |
| FF | 5.0 | 2.6 | 2.3 | ★ | ★ | ★ |
| REW | 5.0 | 2.6 | 2.2 | ★ | ★ | ★ |
| REC | 5.0 | 2.6 | 2.3 | 0 | 0.7 | 0.1 |
| PLAY | 4.9 | 2.6 | 2.3 | 0 | 0.1 | 9.4 |
| CUE | 4.9 | 4.9 | 4.5 | 0 | 0.1 | 9.4 |
| REV | 4.9 | 4.9 | 4.5 | 0 | 0.1 | 9.4 |
| SLOW(1/4) | 4.9 | 2.5 | 2.2 | ★ | ★ | ★ |
| F.A | 5.0 | 2.6 | 2.2 | ★ | ★ | ★ |

| REF.NO. / MODE | Q4701 | | | Q4702 | | | Q4703 | | | Q4704 | | | Q4705 | | | Q4706 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 11.3 | 0.1 | 0.1 | 0.1 | 11.2 | 0 | 0 | 0.2 | 0.1 | 0.1 | 11.2 | 0.1 | 0 | 0.3 | 0.1 | 11.2 | 11.9 | 12.0 |
| REC | 11.3 | 12.0 | 12.1 | 11.3 | 11.2 | 0.1 | 0 | 0.2 | 0.1 | 11.3 | 11.2 | 0.1 | 0 | 0.5 | 0.2 | 11.3 | 11.9 | 12.1 |
| PLAY | 11.3 | 12.0 | 12.1 | 11.4 | 11.2 | 0.1 | 0 | 0.2 | 0.1 | 11.3 | 0.3 | 11.2 | 0 | 0.5 | 0.2 | 11.3 | 12.0 | 12.1 |

| REF.NO. / MODE | Q4707 | | |
|---|---|---|---|
| | E | B | C |
| STOP | 4.7 | 5.3 | 11.3 |
| REC | 4.7 | 5.3 | 11.2 |
| PLAY | 4.8 | 5.3 | 11.3 |

| REF.NO. / MODE | TP6001 | TP6003 | TP6004 | TP6005 | TP6007 | TP6008 |
|---|---|---|---|---|---|---|
| STOP | 3.4 | 4.1 | 0.1 | 4.0 | 5.0 | 4.4 |
| FF | 3.5 | 4.1 | 0.1 | 4.1 | 5.0 | 5.0 |
| REW | 3.5 | 4.1 | 0.2 | 4.1 | 5.0 | 5.0 |
| REC | 3.4 | 4.1 | 0.1 | 3.9 | 5.0 | 4.9 |
| PLAY | 3.4 | 4.0 | 0.1 | 4.0 | 5.0 | 5.0 |
| CUE | 3.4 | 4.0 | 0.1 | 4.0 | 4.9 | 4.9 |
| REV | 3.4 | 4.0 | 0.1 | 4.0 | 5.0 | 4.9 |
| SLOW(1/4) | 3.4 | 4.0 | 0.1 | 4.0 | 5.0 | 4.9 |
| F.A | 3.4 | 4.0 | 0.1 | 4.0 | 5.0 | 4.9 |

| REF.NO. / MODE | TP2001 | TP2002 | TP2003 | TP2004 | TP2005 | TP2006 | TP2007 | TP2008 | TP2009 | TP2010 | TP3201 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STOP | 2.2 | 0.1 | 0.1 | 2.5 | 2.5 | 2.5 | 0.6 | 4.9 | 1.8 | 0.1 | 0.1 |
| REC | 0.1 | 2.1 | 2.5 | 2.6 | 2.4 | 2.5 | 0.6 | 3.9 | 2.4 | 2.5 | 0.1 |
| PLAY | 0.1 | 0.2 | 2.5 | 2.6 | 2.4 | 2.5 | 0.6 | 3.9 | 1.8 | 2.5 | 0.1 |
| CUE | 0.1 | 0.3 | 2.5 | 2.5 | 2.3 | 2.5 | 0.6 | 3.9 | 1.8 | 2.5 | 0.1 |
| REV | 4.9 | 0.2 | 2.5 | 2.7 | 2.4 | 2.5 | 0.6 | 3.8 | 1.8 | 2.5 | 0 |
| SLOW(1/4) | ★ | 0.2 | 2.5 | 2.7 | 2.5 | 2.5 | 0.2 | 3.9 | 1.8 | 2.5 | ★ |
| F.A | ★ | 0.2 | 2.5 | 2.7 | 2.5 | 2.5 | 0.2 | 3.9 | 1.8 | 2.5 | ★ |

VOLTAGE MEASUREMENT:

1. CUE, REVIEW, FRAME ADVANCE, SLOW.
   COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
   COLOR BAR SIGNAL IN SP MODE.

★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

| REF.NO. / MODE | IC6001 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 0 | 0 | 4.9 | 4.9 | 0 | 0 | 0 | 0 | 4.9 | 4.4 | 4.9 | 4.9 | 4.9 | 4.4 | 4.9 | 4.9 | 2.5 | 4.0 | 3.5 | 2.0 |
| FF | 0 | 0.1 | 5.0 | 0.1 | 0 | 0 | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0 |
| REW | 0 | 0.1 | 0.1 | 0.1 | 0 | 0 | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| REC | 0 | 5.0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 | 4.9 | 4.5 | 0.1 | 5.0 | 5.0 | 4.9 | 5.0 | 5.0 | 2.5 | 4.0 | 3.6 | 3.2 |
| PLAY | 0 | 5.0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 | ★ | 4.5 | 5.0 | 5.0 | 5.0 | 4.9 | 4.9 | 5.0 | 2.5 | 4.0 | 3.6 | 3.1 |
| CUE | 0 | 4.9 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 | ★ | 4.5 | 5.0 | 5.0 | 5.0 | 4.9 | 5.0 | 5.0 | 2.5 | 4.0 | 3.6 | 3.1 |
| REV | 0 | 0 | 0.1 | 4.9 | 0 | 0.1 | 0.1 | 0 | ★ | 4.4 | 4.9 | 4.9 | 5.0 | 4.9 | 4.9 | 4.9 | 2.5 | 4.0 | 3.5 | 3.1 |
| SLOW(1/4) | 0 | 5.0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.1 | 4.4 | ★ | 5.0 | 5.0 | 4.9 | 5.0 | 5.0 | 2.5 | 4.0 | 3.6 | 3.2 |
| F.A | 0 | 5.0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 | 4.9 | 4.4 | 4.9 | 5.0 | 5.0 | 4.9 | 5.0 | 5.0 | 2.5 | 4.0 | 3.5 | 3.2 |

| REF.NO. / MODE | IC6001 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| STOP | 4.9 | 0 | 4.0 | 0.6 | 0.6 | 4.0 | 4.0 | 4.0 | 0.1 | 5.0 | 4.9 | 5.0 | 4.9 | 0.1 | 4.9 | 0 | 0 | 0.1 | 4.9 | 4.8 |
| FF | 0.1 | 0 | 4.1 | 0.7 | 0.7 | 4.0 | 4.0 | 4.1 | 4.2 | 5.0 | 5.0 | 5.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| REW | 0.1 | 0 | 4.1 | 0.7 | 0.7 | 4.1 | 4.1 | 4.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 5.0 | 4.8 |
| REC | 5.0 | 0 | 4.0 | 0.7 | 0.7 | 4.0 | 4.1 | 4.1 | 4.2 | 5.0 | 5.0 | 5.0 | 5.0 | 0.1 | 4.9 | 0.1 | 4.8 | 0.1 | 4.9 | 4.8 |
| PLAY | 5.0 | 0 | 4.1 | 0.7 | 0.7 | 4.0 | 4.0 | 4.1 | 4.2 | 5.0 | 5.0 | 5.0 | 5.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 5.0 | 0.1 |
| CUE | 5.0 | 0 | 4.0 | 0.7 | 0.7 | 4.1 | 4.0 | 4.1 | 4.1 | 5.0 | 5.0 | 5.0 | 5.0 | 0.1 | 0.2 | 4.8 | 0.1 | 5.0 | 4.9 | 0.1 |
| REV | 4.9 | 0 | 4.4 | 4.1 | 0.7 | 4.0 | 4.1 | 4.4 | 4.1 | 4.9 | 4.9 | 5.0 | 5.0 | 0.1 | 0.2 | 4.8 | 0.1 | 4.9 | 4.9 | 0 |
| SLOW(1/4) | 5.0 | 0 | 4.0 | 0.7 | 0.7 | 4.0 | 4.0 | 4.1 | 4.2 | 5.0 | 5.0 | 5.0 | 5.0 | 0.1 | 0.2 | 4.8 | 0.1 | 0.1 | 4.9 | 0.1 |
| F.A | 5.0 | 0 | 4.1 | 0.7 | 0.7 | 4.0 | 2.2 | 4.1 | 4.2 | 5.0 | 5.0 | 5.0 | 5.0 | 0.1 | 0.2 | 4.8 | 0.1 | 0.1 | 4.9 | 0.1 |

| REF.NO. / MODE | IC6001 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| STOP | 0.1 | 0.1 | 0 | 0.1 | 4.8 | 0.1 | 0.1 | 0.1 | 4.9 | 0.1 | 0.1 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 4.8 | 4.9 | 4.9 | 4.5 |
| FF | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 4.8 | 0.2 | 5.0 | 0.1 | 0.1 | 0.1 | 0.1 | 4.8 | 4.9 | 4.9 | 4.5 |
| REW | 0.1 | 0.1 | 0.1 | 5.0 | 4.8 | 0.1 | 0.1 | 0.1 | 5.0 | 4.8 | 0.2 | 5.0 | 0.1 | 0.1 | 0.1 | 5.0 | 4.8 | 4.9 | 4.9 | 4.5 |
| REC | 4.8 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 4.9 | 4.9 | 5.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 4.8 | 4.9 | 4.9 | 4.5 |
| PLAY | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 4.9 | 4.9 | 5.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 4.9 | 4.9 | 4.5 |
| CUE | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 4.9 | 4.9 | 4.9 | 5.0 | 0.1 | 4.9 | 0.1 | 0.1 | 0.1 | 4.9 | 4.9 | 4.5 |
| REV | 0.1 | 0.1 | 0.1 | 0.1 | 4.7 | 0.1 | 0.1 | 0.1 | 4.9 | 4.8 | 4.9 | 4.9 | 0.1 | 4.9 | 0.1 | 4.9 | 0.1 | 4.9 | 4.9 | 4.4 |
| SLOW(1/4) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 1.7 | 0.1 | 0.1 | 4.9 | 0.1 | 0.1 | 5.0 | 0.1 | 0.1 | 0.1 | 4.9 | 4.9 | 4.5 |
| F.A | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | ★ | 0.1 | 0.1 | 4.9 | 0.1 | 0.1 | 5.0 | 0.1 | 0.1 | 0.1 | 4.9 | 4.9 | 4.5 |

| REF.NO. / MODE | IC6001 | | | | IC6004 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 61 | 62 | 63 | 64 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | |
| STOP | 4.8 | 2.3 | 2.4 | 4.9 | 0 | 0.6 | 0.5 | 8.2 | 0.1 | 0.1 | 14.2 | 14.2 | 0.9 | 0.6 | | | | | | |
| FF | 4.9 | 2.3 | 2.4 | 5.0 | 0 | 0.7 | 0.9 | 8.3 | 0.1 | 0.1 | 14.2 | 14.2 | 1.0 | 0.7 | | | | | | |
| REW | 4.9 | 2.3 | 2.4 | 5.0 | 0 | 0 | 0.1 | 0.1 | 0 | 0 | 0.1 | 0 | 0 | 0 | | | | | | |
| REC | 4.9 | 2.3 | 2.4 | 5.0 | 0 | 0.7 | 0.9 | 8.3 | 0.1 | 0.1 | 14.1 | 14.1 | 1.0 | 0.7 | | | | | | |
| PLAY | 4.8 | 2.3 | 2.4 | 5.0 | 0 | 0.7 | 0.9 | 8.3 | 0.1 | 0.1 | 14.3 | 14.3 | 0.9 | 0.7 | | | | | | |
| CUE | 4.9 | 2.3 | 2.4 | 5.0 | 0 | 0.7 | 0.9 | 8.3 | 0.1 | 0.1 | 14.2 | 14.3 | 1.0 | 0.7 | | | | | | |
| REV | 4.8 | 2.3 | 2.4 | 4.9 | 0 | 0.6 | 0.9 | 8.2 | 0.1 | 0.1 | 14.2 | 14.2 | 0.9 | 0.7 | | | | | | |
| SLOW(1/4) | 4.8 | 2.3 | 2.4 | 5.0 | 0 | 0.7 | 0.9 | 8.3 | 0.1 | 0.1 | 14.2 | 14.2 | 0.9 | 0.7 | | | | | | |
| F.A | 4.8 | 2.3 | 2.4 | 5.0 | 0 | 0.7 | 0.9 | 8.2 | 0.1 | 0.1 | 14.2 | 14.2 | 0.9 | 0.7 | | | | | | |

| REF.NO. / MODE | IC6005 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | |
| STOP | 0 | 0.6 | 0.9 | ★ | 0 | 0.1 | 14.2 | 14.2 | 0.9 | 0.6 | | | | | | | | | | |
| FF | 0 | 0.6 | 1.0 | ★ | 0.1 | 0.1 | 14.2 | 14.2 | 1.0 | 0.6 | | | | | | | | | | |
| REW | 0 | 0.1 | 1.0 | ★ | 0.1 | 0.1 | 14.2 | 14.2 | 1.0 | 0.6 | | | | | | | | | | |
| REC | 0 | 0.6 | 1.0 | ★ | 0.1 | 0.1 | 14.1 | 14.1 | 1.0 | 0.6 | | | | | | | | | | |
| PLAY | 0 | 0.6 | 0.9 | ★ | 0.1 | 0.1 | 14.3 | 14.3 | 1.0 | 0.6 | | | | | | | | | | |
| CUE | 0 | 0.6 | 0.9 | ★ | 0.1 | 0.1 | 14.2 | 14.3 | 1.0 | 0.6 | | | | | | | | | | |
| REV | 0 | 0.6 | 0.9 | ★ | 0.1 | 0.1 | 14.2 | 14.2 | 0.9 | 0.6 | | | | | | | | | | |
| SLOW(1/4) | 0 | 0.6 | 0.9 | ★ | 0.1 | 0.1 | 14.2 | 14.2 | 1.0 | 0.6 | | | | | | | | | | |
| F.A | 0 | 0.6 | 0.9 | ★ | 0.1 | 0.1 | 14.2 | 14.2 | 1.0 | 0.6 | | | | | | | | | | |

| REF.NO. / MODE | IC3201 | | | | | | | | | IC4701 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | |
| STOP | 8.4 | 0.4 | 8.4 | 0 | 0 | 8.4 | 0.7 | 7.6 | 12.0 | 5.7 | 5.7 | 5.7 | 0 | 5.7 | 5.7 | 5.7 | 11.3 | | | |
| REC | 8.4 | 0.3 | 8.4 | 0 | 0 | 8.4 | 0.5 | 7.6 | 12.0 | 5.7 | 5.7 | 5.7 | 0 | 5.7 | 5.7 | 5.7 | 11.3 | | | |
| PLAY | 8.4 | 0.3 | 8.4 | 0 | 0 | 8.4 | 8.9 | 7.6 | 12.1 | 5.8 | 5.8 | 5.7 | 0 | 5.7 | 5.7 | 5.8 | 11.3 | | | |
| CUE | 8.4 | 0.4 | 8.4 | 0 | 0 | 8.4 | 8.9 | 7.6 | 12.1 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | |
| REV | 8.4 | 0.4 | 8.4 | 0 | 0 | 8.4 | 8.9 | 7.6 | 12.0 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | |

| REF.NO. / MODE | IC4702 | | | | | | | | IC4703 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | |
| STOP | 5.7 | 5.7 | 5.7 | 0 | 5.7 | 5.7 | 5.7 | 11.3 | 7.8 | 0 | 7.8 | 0 | 4.9 | 7.0 | 11.2 | | | | |
| REC | 5.7 | 5.7 | 5.7 | 0 | 5.7 | 5.7 | 5.7 | 11.3 | 7.9 | 0 | 7.8 | 0 | 4.9 | 7.0 | 11.2 | | | | |
| PLAY | 5.7 | 5.8 | 5.7 | 0 | 5.7 | 5.8 | 5.8 | 11.3 | 7.9 | 0 | 7.8 | 0 | 4.9 | 7.0 | 11.3 | | | | |

| REF.NO. / MODE | IC4704 | | | | | | | IC4705 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | |
| STOP | 7.8 | 0 | 7.8 | 0 | 4.9 | 7.0 | 11.2 | 11.2 | 5.6 | 5.6 | 5.6 | 0 | 5.6 | 5.6 | 5.6 | 11.2 | | | |
| REC | 7.9 | 0 | 7.9 | 0 | 4.9 | 7.1 | 11.2 | 11.3 | 5.6 | 5.6 | 5.6 | 0 | 5.6 | 5.6 | 5.6 | 11.3 | | | |
| PLAY | 7.9 | 0 | 7.9 | 0 | 4.9 | 7.1 | 11.3 | 11.3 | 5.6 | 5.7 | 5.6 | 0 | 5.6 | 5.6 | 5.6 | 11.3 | | | |

VOLTAGE MEASUREMENT:

1. CUE, REVIEW, FRAME ADVANCE, SLOW.
   COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
   COLOR BAR SIGNAL IN SP MODE.

★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

P2001

| | |
|---|---|
| 1 | ROTARY SW |
| 2 | VSS |
| 3 | PICTURE CTL |
| 4 | HEAD SW |
| 5 | 3.58MHz |
| 6 | PB Ⓗ |
| 7 | DELAY REC Ⓗ |
| 8 | CUE/REVIEW/SS Ⓗ |
| 9 | SLP Ⓗ |
| 10 | LP/SLP Ⓗ |
| 11 | EE/VV(EE Ⓗ) |
| 12 | EXCEPT PB Ⓗ |

P2002

| | |
|---|---|
| 1 | V-PULSE |
| 2 | V-LOCK |
| 3 | ENV DET |
| 4 | HEAD SW |

P2003

| | |
|---|---|
| 1 | CONTROL HEAD |
| 2 | GND |

P2004

| | |
|---|---|
| 1 | GND |
| 2 | VH+ |
| 3 | $\overline{\text{HEM}}$ |
| 4 | HEM |
| 5 | $\overline{\text{HES}}$ |
| 6 | HES |
| 7 | MAIN COIL 3 |
| 8 | MAIN COIL 2 |
| 9 | +14V |
| 10 | MAIN COIL 1 |

P2005

| | |
|---|---|
| 1 | CAP Ⓜ FG |
| 2 | GND |

P2006

| | |
|---|---|
| 1 | ERROR |
| 2 | FWD Ⓛ/STOP Ⓜ/REV Ⓗ |
| 3 | CUE/REVIEW/SS Ⓗ |
| 4 | REF VOLTAGE |
| 5 | +5V |
| 6 | VM |
| 7 | GND |
| 8 | TL |

P3201

| | |
|---|---|
| 1 | GND |
| 2 | VIDEO |
| 3 | GND |
| 4 | VIDEO |
| 5 | GND |
| 6 | VIDEO |
| 7 | AUDIO |
| 8 | GND |

P4701

| | |
|---|---|
| 1 | HEADPHONE L CH |
| 2 | HEADPHONE R CH |
| 3 | GND |
| 4 | AUDIO L CH |
| 5 | GND |
| 6 | AUDIO R CH |

P4702

| | |
|---|---|
| 1 | AUDIO R CH |
| 2 | GND |
| 3 | AUDIO L CH |

P6001

| | |
|---|---|
| 1 | DEW SENSOR |
| 2 | SENSOR LED PULSE |
| 3 | REEL LED |
| 4 | REEL SENSOR |
| 5 | POSITION 1 |
| 6 | POSITION 3 |
| 7 | POSITION 2 |
| 8 | |
| 9 | SAFETY TAB SW |
| 10 | GND |
| 11 | UNSWITCH +12V |

P6002

| | |
|---|---|
| 1 | SERIAL CLOCK |
| 2 | 349KHz |
| 3 | SERIAL DATA |
| 4 | TV/VCR SW |

P6003

| | |
|---|---|
| 1 | DATA 10 |
| 2 | DATA 9 |
| 3 | DATA 8 |
| 4 | VIDEO INPUT SELECT |
| 5 | AUDIO INPUT SELECT |
| 6 | AUDIO Ⓗ |

P6005

| | |
|---|---|
| 1 | LOADING Ⓜ UNLOADING Ⓗ |
| 2 | LOADING Ⓜ LOADING Ⓗ |

P6006

| | |
|---|---|
| 1 | CASSETTE LOAD Ⓜ LOAD Ⓗ |
| 2 | CASSETTE LOADⓂUNLOADⒽ |
| 3 | SUPPLY PHOTO TR |
| 4 | GND |
| 5 | CASSETTE IN SW |
| 6 | CASSETTE UP/DOWN SW |
| 7 | TAKEUP PHOTO TR |

P6007

| | |
|---|---|
| 1 | IR DATA 3 |
| 2 | IR DATA 0 |
| 3 | IR DATA 1 |
| 4 | IR DATA 2 |
| 5 | IR POWER ON Ⓛ |
| 6 | GND |
| 7 | TIMER SET Ⓛ |
| 8 | TIMER REC Ⓛ |
| 9 | SAFETY TAB SW |
| 10 | |

P6008

| | |
|---|---|
| 1 | GND |
| 2 | TV/VCR SW |
| 3 | POWER SW |
| 4 | SCAN 1 |
| 5 | SCAN 2 |
| 6 | DATA 11 |
| 7 | DATA 10 |
| 8 | DATA 9 |
| 9 | DATA 8 |

P6009

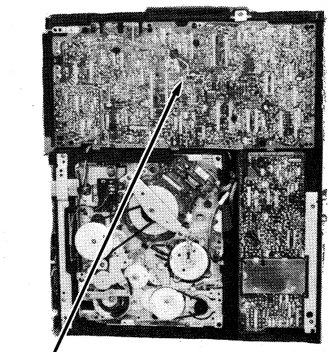
| | |
|---|---|
| 1 | UNSWITCH +12V |
| 2 | GND |
| 3 | +5V |
| 4 | +14V |
| 5 | +12V |
| 6 | POWER ON Ⓛ |
| 7 | GND |

P6010

| | |
|---|---|
| 1 | AUDIO MUTE Ⓗ |
| 2 | AUDIO DELAY REC Ⓗ |
| 3 | |
| 4 | SLP Ⓗ |
| 5 | LP/SLP Ⓗ |
| 6 | AUDIO EE Ⓗ |

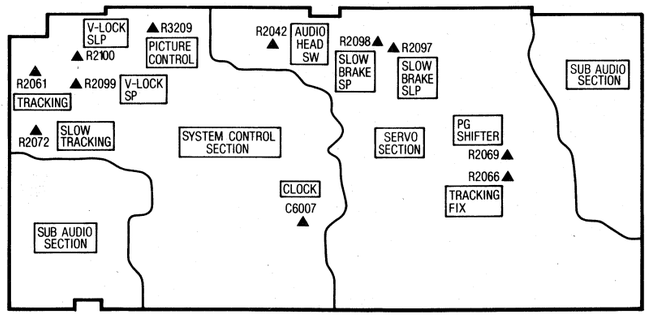
P6011

| | |
|---|---|
| 1 | EE/VV(EE Ⓗ) |
| 2 | EXCEPT PB Ⓗ |
| 3 | AUDIO HEAD SW |
| 4 | +5V |
| 5 | UNSWITCH +12V |
| 6 | SPEED MEMORY Ⓛ |

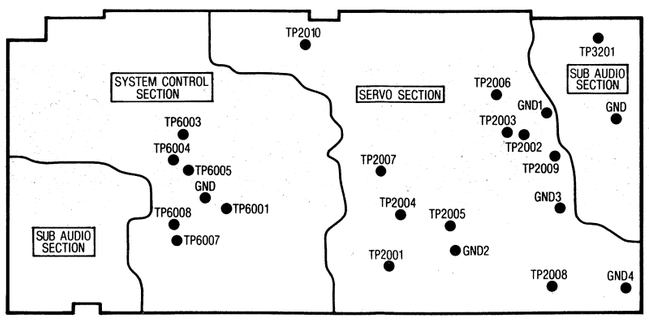


MAIN C.B.A.
(SERVO/SYSTEM CONTROL
SUB AUDIO)

## LOCATION OF ADJUSTMENT POINTS



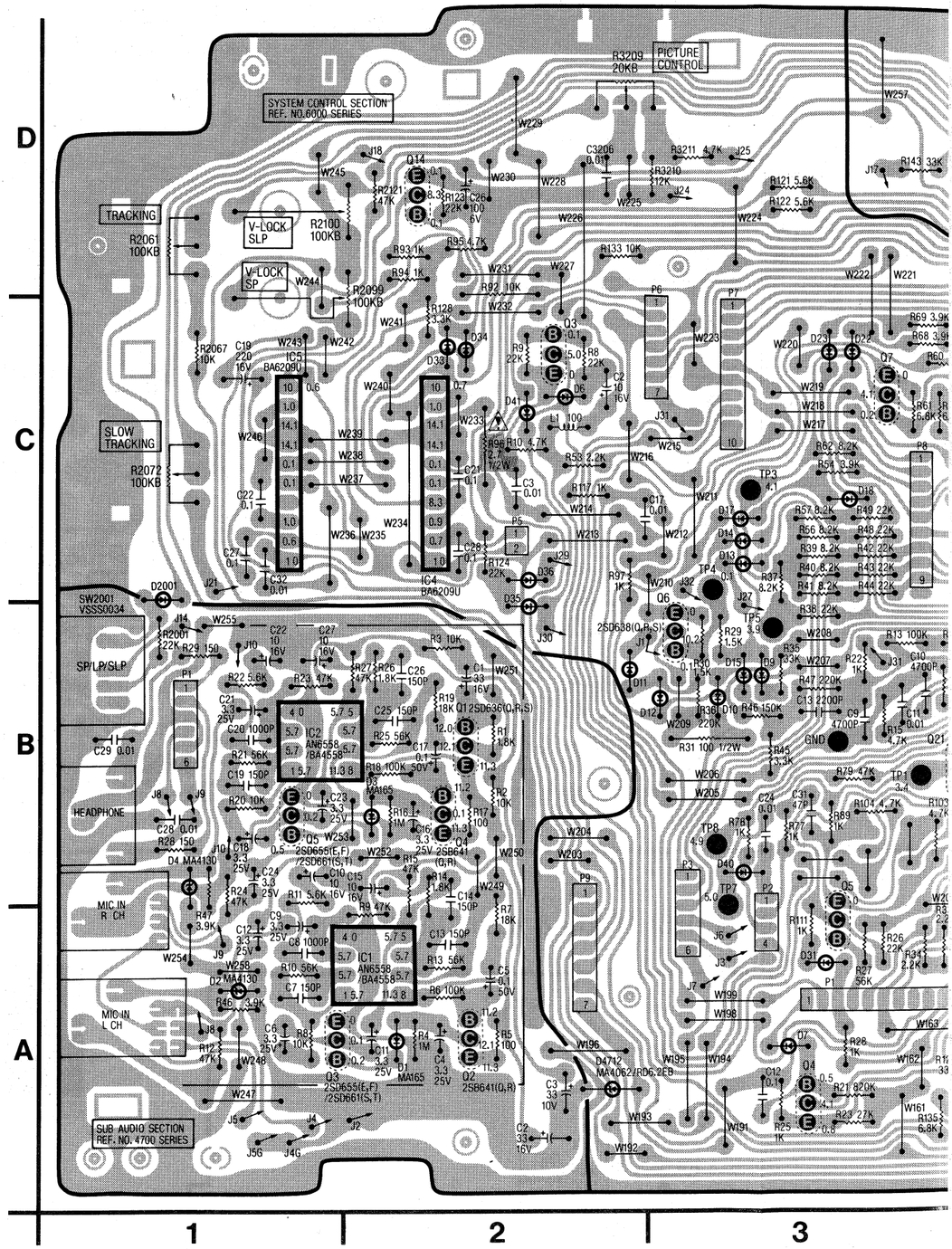

## LOCATION OF TEST POINTS




# MAIN C.B.A. (SERVO/SYSTEM CONTROL/SUB AUDIO)

SERVO/SYSTEM CONTROL SECTION
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL
IN SP REC MODE.

SUB AUDIO SECTION
VOLTAGE MEASUREM



# STEM CONTROL/SUB AUDIO) VEPS0251B1

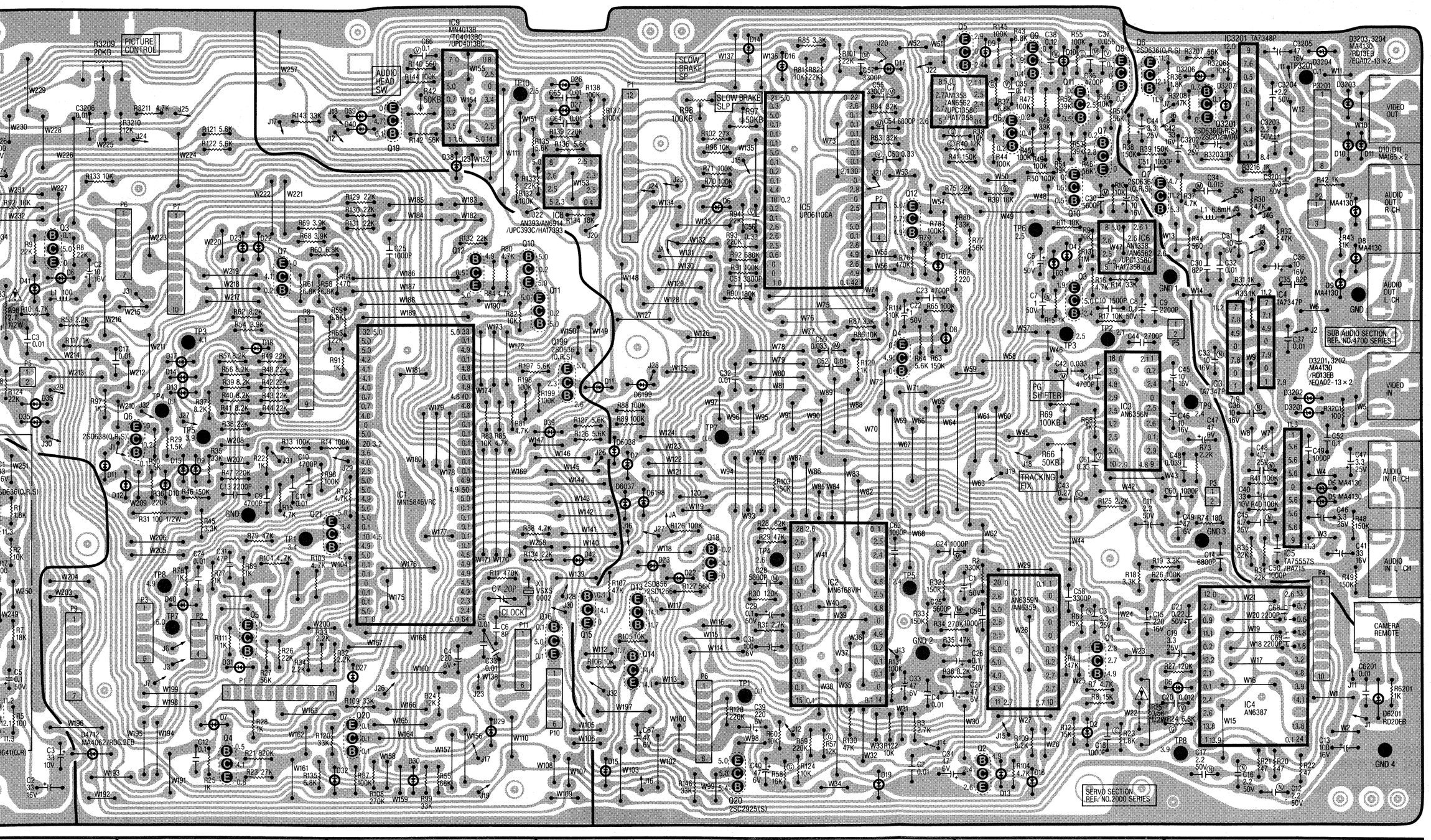
ROL SECTION
NT : COLOR BAR SIGNAL
IN SP REC MODE.

SUB AUDIO SECTION
VOLTAGE MEASUREMENT : MONOSCOPE SIGNAL
IN SP REC MODE.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.






| SERVO SECTION | |
|---|---|
| Q1 | 7-A |
| Q2 | 7-A |
| Q3 | 7-C |
| Q4 | 6-C |
| Q5 | 7-D |
| Q6 | 7-D |
| Q7 | 7-D |
| Q8 | 7-D |
| Q9 | 7-D |
| Q10 | 7-D |
| Q11 | 7-D |
| Q12 | 6-C |
| Q13 | 5-B |
| Q14 | 5-A |
| Q15 | 5-B |
| Q18 | 5-B |
| Q19 | 4-D |
| Q20 | 6-A |

| SYSTEM CONTROL SECTION | |
|---|---|
| Q3 | 2-C |
| Q4 | 3-A |
| Q5 | 3-A |
| Q6 | 3-B |
| Q7 | 3-C |
| Q10 | 4-C |
| Q11 | 5-C |
| Q12 | 4-C |
| Q14 | 2-D |
| Q16 | 5-A |
| Q20 | 4-A |
| Q21 | 3-B |
| Q119 | 5-C |

| SUB AUDIO SECTION | |
|---|---|
| Q1 | 2-B |
| Q2 | 2-A |
| Q3 | 1-A |
| Q4 | 2-B |
| Q5 | 1-B |
| Q6 | 7-D |
| Q7 | 7-C |
| Q3201 | 8-D |

Q2001,Q2002,Q2005,
Q2006,Q2012,Q2014,
Q6010,Q6011,Q6012,Q6021
2SB641(Q,R,S)/2SA937M(R) ×10

UNLESS OTHERWISE SPECIFIED;
TRANSISTORS ARE 2SD636(Q,R,S),
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

VJBS0251④

| REF.NO. / MODE | Q4001 | | | Q4002 | | | Q4003 | | | Q4004 | | | Q4007 | | | Q4008 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 10.5 | 11.3 | | 0 | 0 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.6 | 0 | 0 | 0 | 11.8 |
| REC | 10.6 | 11.3 | 11.8 | 0 | −1.0 | 11.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.6 | 0 | 0 | 0 | 0 |
| PLAY | 10.5 | 11.2 | 11.8 | 0 | 0.3 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5.6 | 0 | 0 | 11.8 |

| REF.NO. / MODE | Q4009 | | | Q4011 | | | Q4012 | | | Q4013 | | | Q4014 | | | Q4015 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 11.8 | 11.8 | 0.4 | 0 | 0 | 4.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10.5 |
| REC | 11.8 | 0 | 11.8 | 0 | 0 | 4.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.3 | 0 | 0 | 0 | 10.5 |
| PLAY | 11.9 | 11.8 | 0.3 | 0 | 5.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5.6 | 0 | 0 | 10.4 |

| REF.NO. / MODE | Q4016 | | | Q4017 | | | Q4018 | | | Q4019 | | | Q4020 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | | | |
| STOP | 10.5 | 10.5 | 0 | 10.5 | 10.5 | 0 | 0 | 0 | 10.6 | 0 | 0 | 10.5 | 10.5 | 10.4 | 0 | | | |
| REC | 10.5 | 10.5 | 0 | 10.5 | 10.5 | 0 | 0 | 0 | 10.5 | 0 | 0 | 10.5 | 10.5 | 10.4 | 0 | | | |
| PLAY | 10.4 | 10.4 | 0 | 10.5 | 10.4 | 0 | 0 | 0 | 10.5 | 0 | 0 | 10.4 | 10.4 | 10.4 | 0 | | | |

| REF.NO. / MODE | IC4001 | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STOP | 0 | 0 | 0 | 0 | 4.4 | 10.6 | 0 |
| REC | 0 | 0 | 0 | 0 | 0 | 10.6 | 0 |
| PLAY | 0 | 0 | 0 | 0 | 0 | 10.5 | 5.6 |

| REF.NO. / MODE | IC4002 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 5.0 | 5.1 | 5.2 | 5.5 | 5.6 | 5.6 | ★ | 5.5 | 5.6 | 5.5 | 0 | 0 | 10.6 | 5.6 | 5.5 | 5.6 | 5.6 | ★ | 0 | 4.5 |
| REC | 5.0 | 5.1 | 5.1 | 5.6 | 5.6 | 5.6 | ★ | 5.5 | 5.6 | 5.6 | 0 | 0 | 10.6 | 5.5 | 5.6 | 5.6 | 5.5 | ★ | 0 | 0 |
| PLAY | 5.0 | 5.1 | 5.3 | 5.5 | 5.5 | 5.5 | ★ | 5.5 | 5.5 | 5.4 | 0 | 0 | 10.5 | 5.5 | 5.5 | 5.5 | 5.5 | ★ | 0 | 0 |

| REF.NO. | IC4002 | | | | IC4003 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODE | 21 | 22 | 23 | 24 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | |
| STOP | 5.5 | 5.4 | ★ | ★ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |
| REC | 5.5 | 5.4 | ★ | ★ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |
| PLAY | 5.5 | 5.4 | ★ | ★ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |

| REF.NO. / MODE | IC4004 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| STOP | 5.8 | 0.7 | 0.7 | 5.4 | 5.4 | 5.0 | 5.4 | 5.4 | 0 | 5.4 | 0 | 5.0 | 5.4 | 5.5 | 0.7 | 0.7 | 10.6 | 5.8 |
| REC | 5.8 | 0.7 | 0.7 | 5.4 | 5.4 | 5.0 | 5.4 | 5.4 | 0 | 5.4 | 0 | 5.0 | 5.4 | 5.5 | 0.7 | 0.7 | 10.6 | 5.8 |
| PLAY | 5.8 | 0.7 | 0.7 | 5.4 | 5.3 | 5.0 | 5.4 | 5.4 | 0 | 5.4 | 0 | 5.0 | 5.3 | 5.4 | 0.7 | 0.7 | 10.5 | 5.7 |

| REF.NO. / MODE | IC4005 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | | | | | | | | | |
| STOP | 0 | 0 | 0 | 0 | 0 | 10.6 | 0 | | | | | | | | | | | | | |
| REC | 0 | 0 | 0 | 0 | 0 | 10.6 | 0 | | | | | | | | | | | | | |
| PLAY | 0 | 0 | 0 | 0 | 0 | 10.5 | 5.6 | | | | | | | | | | | | | |

| REF.NO. / MODE | IC4006 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 5.1 | 5.2 | 5.4 | 5.6 | 5.6 | 5.6 | ★ | 5.6 | 5.6 | 5.6 | 0 | 0 | 10.6 | 5.6 | 5.6 | 5.6 | 5.6 | ★ | 0 | 4.5 |
| REC | 5.1 | 5.1 | 5.4 | 5.5 | 5.5 | 5.5 | ★ | 5.5 | 5.5 | 5.5 | 0 | 0 | 10.6 | 5.5 | 5.5 | 5.5 | 5.5 | ★ | 0 | 4.4 |
| PLAY | 5.1 | 5.1 | 5.4 | 5.5 | 5.5 | 5.5 | ★ | 5.5 | 5.5 | 5.5 | 0 | 0 | 10.5 | 5.5 | 5.5 | 5.5 | 5.5 | ★ | 0 | 0 |

| REF.NO. | IC4006 | | | | IC4007 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODE | 21 | 22 | 23 | 24 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | |
| STOP | 5.4 | 5.4 | ★ | ★ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |
| REC | 5.4 | 5.4 | ★ | ★ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |
| PLAY | 5.4 | 5.4 | ★ | ★ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |

| REF.NO. / MODE | TP4001 | TP4002 | TP4003 | TP4004 |
|---|---|---|---|---|
| STOP | 0 | 0 | 0 | 0 |
| REC | 0 | 0 | 0 | 0 |
| PLAY | 0 | 0 | 0 | 0 |

VOLTAGE MEASUREMENT:
MONOSCOPE SIGNAL IN SP MODE.

★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

P4001

| | |
|---|---|
| 1 | NORMAL AUDIO HEAD L CH |
| 2 | NORMAL AUDIO HEAD L CH |
| 3 | GND |
| 4 | NORMAL AUDIO HEAD R CH |
| 5 | NORMAL AUDIO HEAD R CH |
| 6 | GND |
| 7 | AUDIO ERASE HEAD |
| 8 | GND |

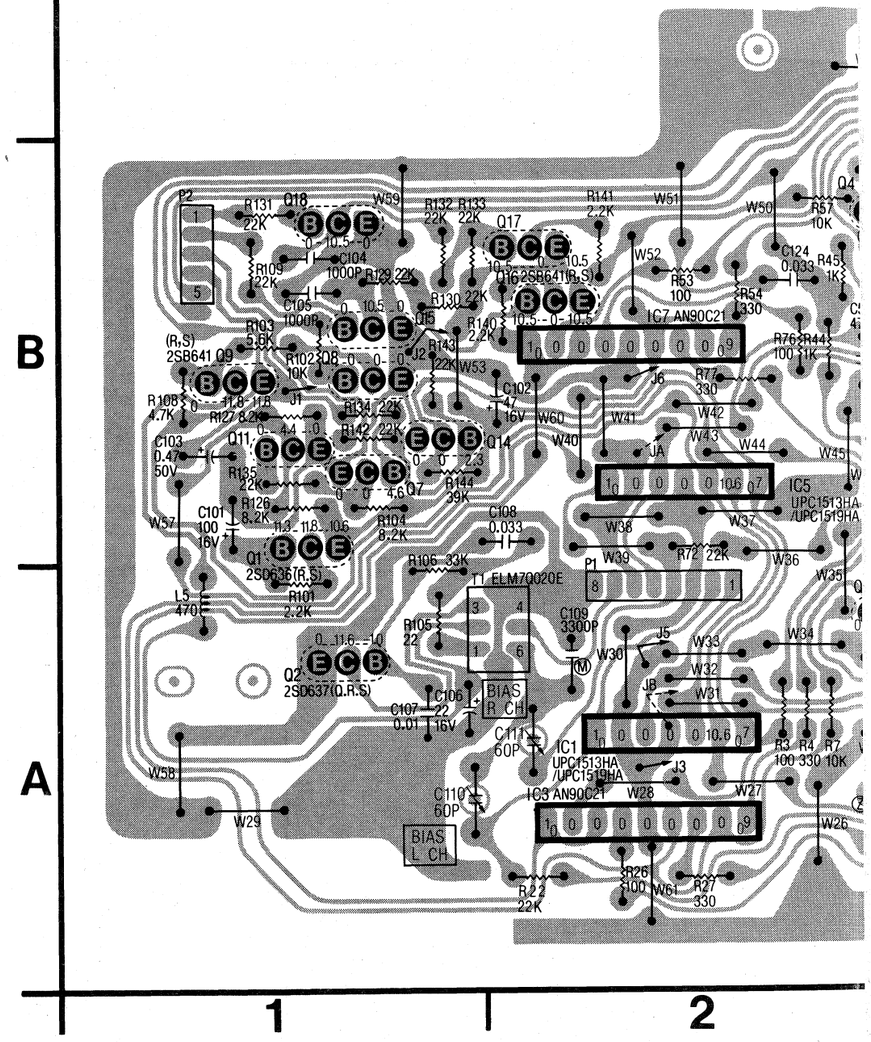
P4002

| | |
|---|---|
| 1 | SLP Ⓗ |
| 2 | LP/SLP Ⓗ |
| 3 | AUDIO DELAY REC Ⓗ |
| 4 | AUDIO EE Ⓗ |
| 5 | AUDIO MUTE Ⓗ |

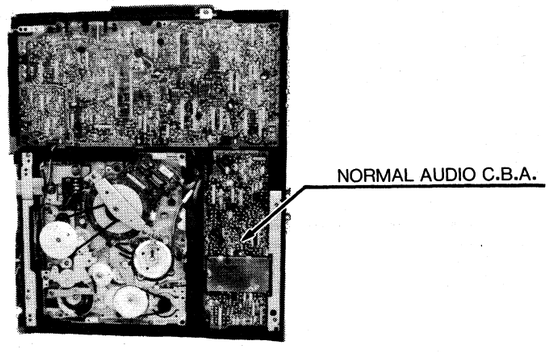
P4006

| | |
|---|---|
| 1 | +12V |
| 2 | DOLBY ON Ⓗ |
| 3 | AUDIO MUTE Ⓗ |
| 4 | NORMAL AUDIO R CH |
| 5 | NORMAL AUDIO L CH |
| 6 | GND |
| 7 | NORMAL AUDIO L CH |
| 8 | GND |
| 9 | NORMAL AUDIO R CH |
| 10 | GND |
| 11 | AUDIO EE Ⓗ |

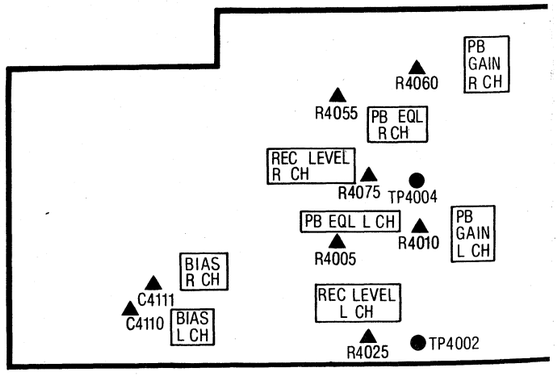
## NORMAL AUDIO C.B.A. VEPS0422B1




LOCATION OF TEST POINTS & ADJU



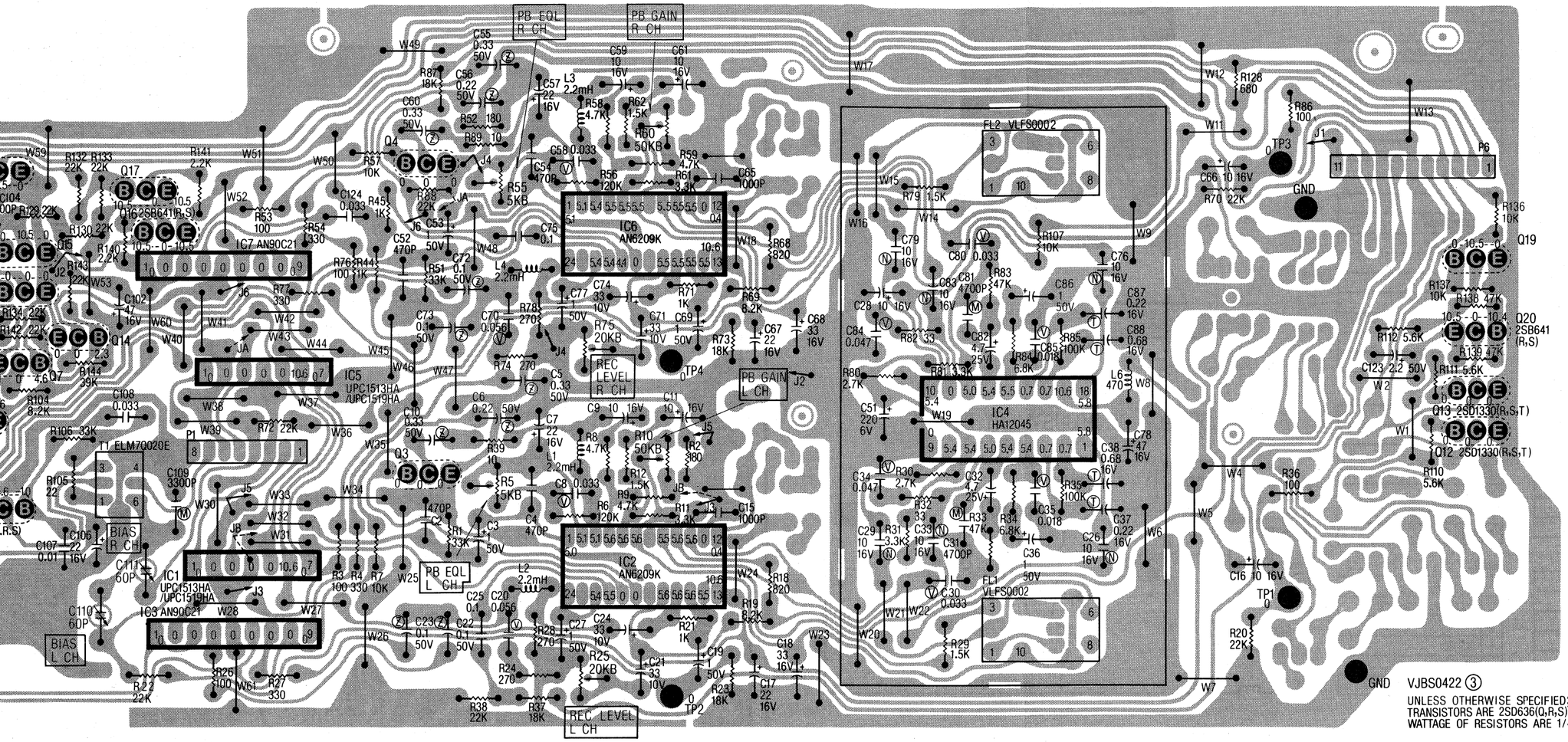
NORMAL AUDIO C.B.A.



# DIO C.B.A. VEPS0422B1

VOLTAGE MEASUREMENT : MONOSCOPE SIGNAL
IN SP REC MODE.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



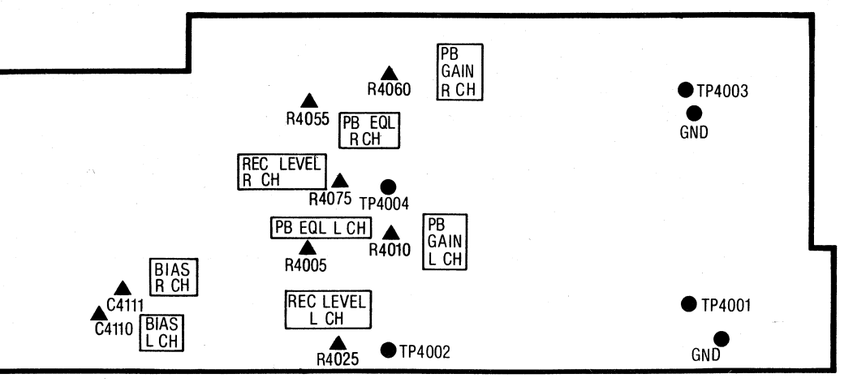

VJBS0422 ③

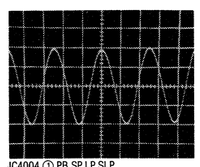
UNLESS OTHERWISE SPECIFIED;
TRANSISTORS ARE 2SD636(Q,R,S) AND
WATTAGE OF RESISTORS ARE 1/4W.

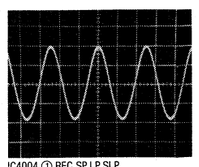
| NORMAL AUDIO C.B.A. | |
|---|---|
| Q1 | 1-B |
| Q2 | 1-A |
| Q3 | 2-A |
| Q4 | 2-B |
| Q7 | 1-B |
| Q8 | 1-B |
| Q9 | 1-B |
| Q11 | 1-B |
| Q12 | 6-B |
| Q13 | 6-B |
| Q14 | 1-B |
| Q15 | 1-B |
| Q16 | 2-B |
| Q17 | 2-B |
| Q18 | 1-B |
| Q19 | 6-B |
| Q20 | 6-B |

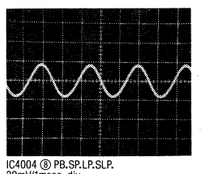
2 3 4 5 6

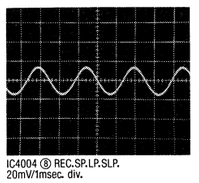
## LOCATION OF TEST POINTS & ADJUSTMENT POINTS

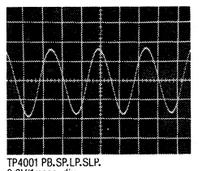


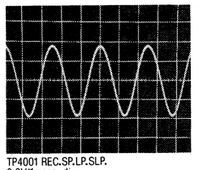


IC4004 ① PB.SP.LP.SLP.
0.2V/1msec. div.

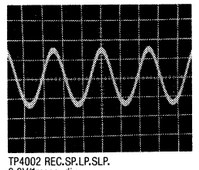

IC4004 ① REC.SP.LP.SLP.
0.2V/1msec. div.


IC4004 ⑧ PB.SP.LP.SLP.
20mV/1msec. div.


IC4004 ⑧ REC.SP.LP.SLP.
20mV/1msec. div.


TP4001 PB.SP.LP.SLP.
0.2V/1msec. div.


TP4001 REC.SP.LP.SLP.
0.2V/1msec. div.

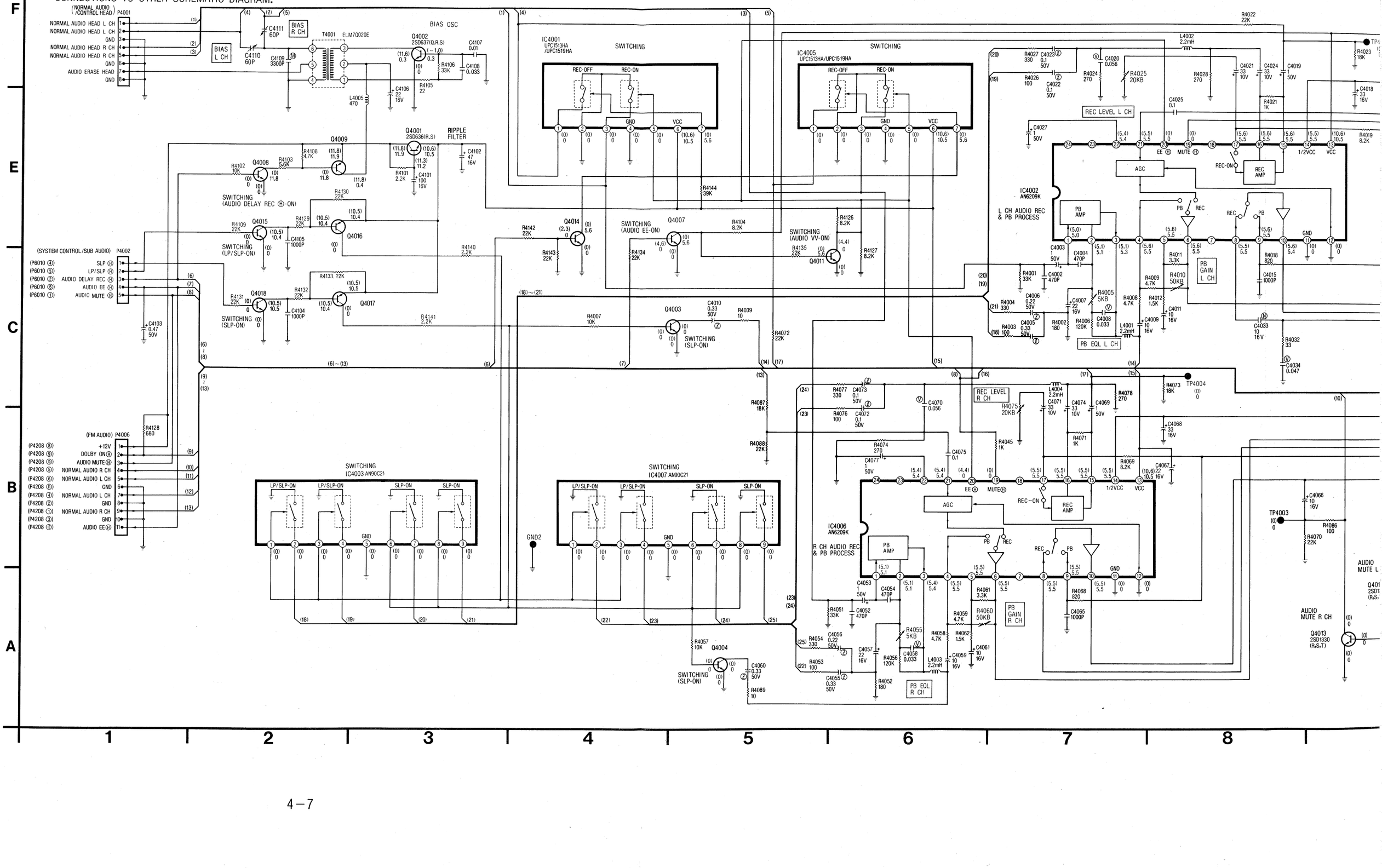

TP4002 REC.SP.LP.SLP.
0.2V/1msec. div.

# NORMAL AUDIO SCHEMATIC DIAGRAM

CALLOUTS NEXT TO WIRING PLUGS INDICATE
CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

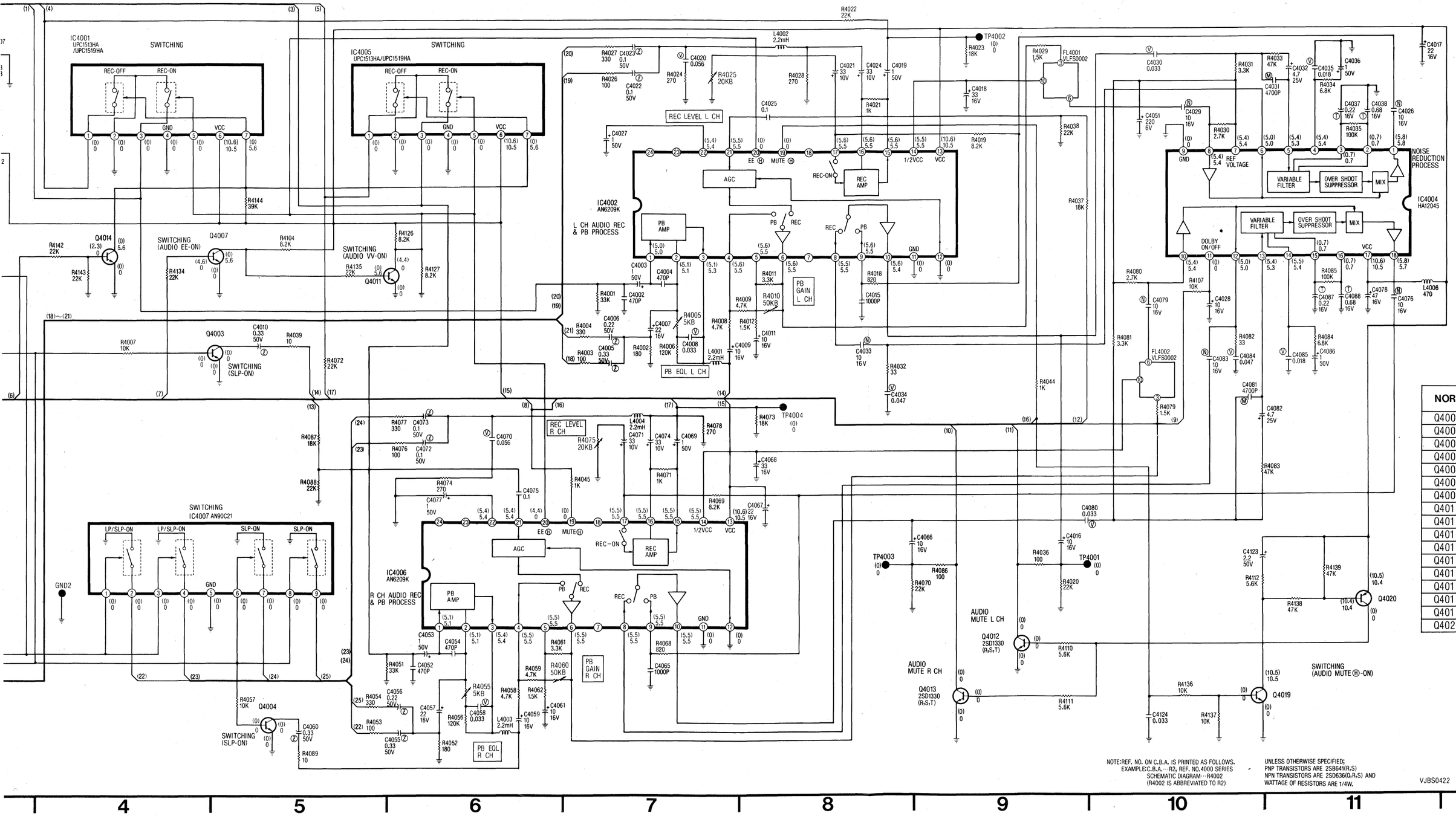
VOLTAGE MEASUREMENT:
MONOSCOPE SIGNAL IN SP REC MODE WITH BRACKET.
MONOSCOPE SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER
ELECTROSTATICALLY SENSITIVE AND THEREFO
HANDLING TECHNIQUES DESCRIBED UNDER THE
(ES) DEVICES" SECTION OF THIS SERVICE MA



VOLTAGE MEASUREMENT:
MONOSCOPE SIGNAL IN SP REC MODE WITH BRACKET.
MONOSCOPE SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.




| NORMAL AUDIO | |
|---|---|
| Q4001 | 3-D |
| Q4002 | 3-E |
| Q4003 | 5-C |
| Q4004 | 5-A |
| Q4007 | 5-D |
| Q4008 | 2-D |
| Q4009 | 2-D |
| Q4011 | 6-C |
| Q4012 | 9-A |
| Q4013 | 9-A |
| Q4014 | 4-D |
| Q4015 | 2-D |
| Q4016 | 2-D |
| Q4017 | 2-C |
| Q4018 | 2-C |
| Q4019 | 10-A |
| Q4020 | 11-B |

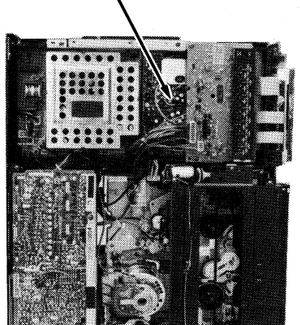
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.4000 SERIES SCHEMATIC DIAGRAM···R4002 (R4002 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED;
PNP TRANSISTORS ARE 2SB641(R,S)
NPN TRANSISTORS ARE 2SD636(Q,R,S) AND
WATTAGE OF RESISTORS ARE 1/4W.

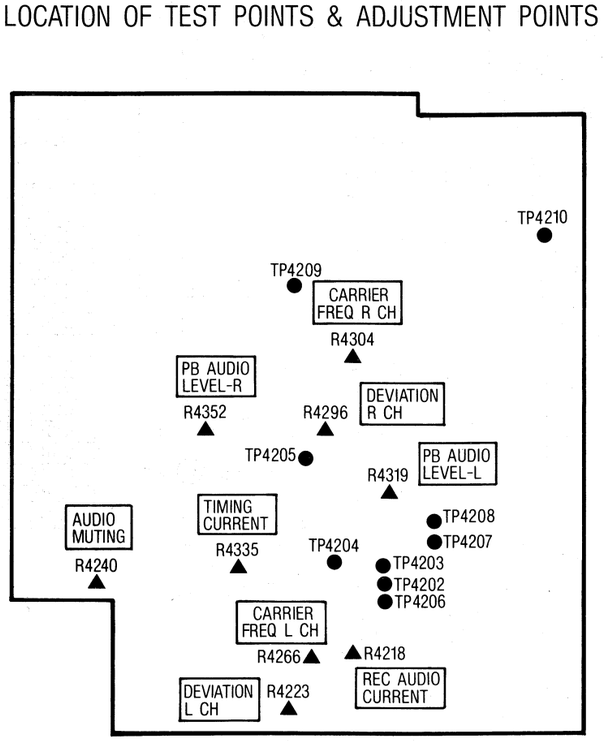
VJBS0422

4 5 6 7 8 9 10 11

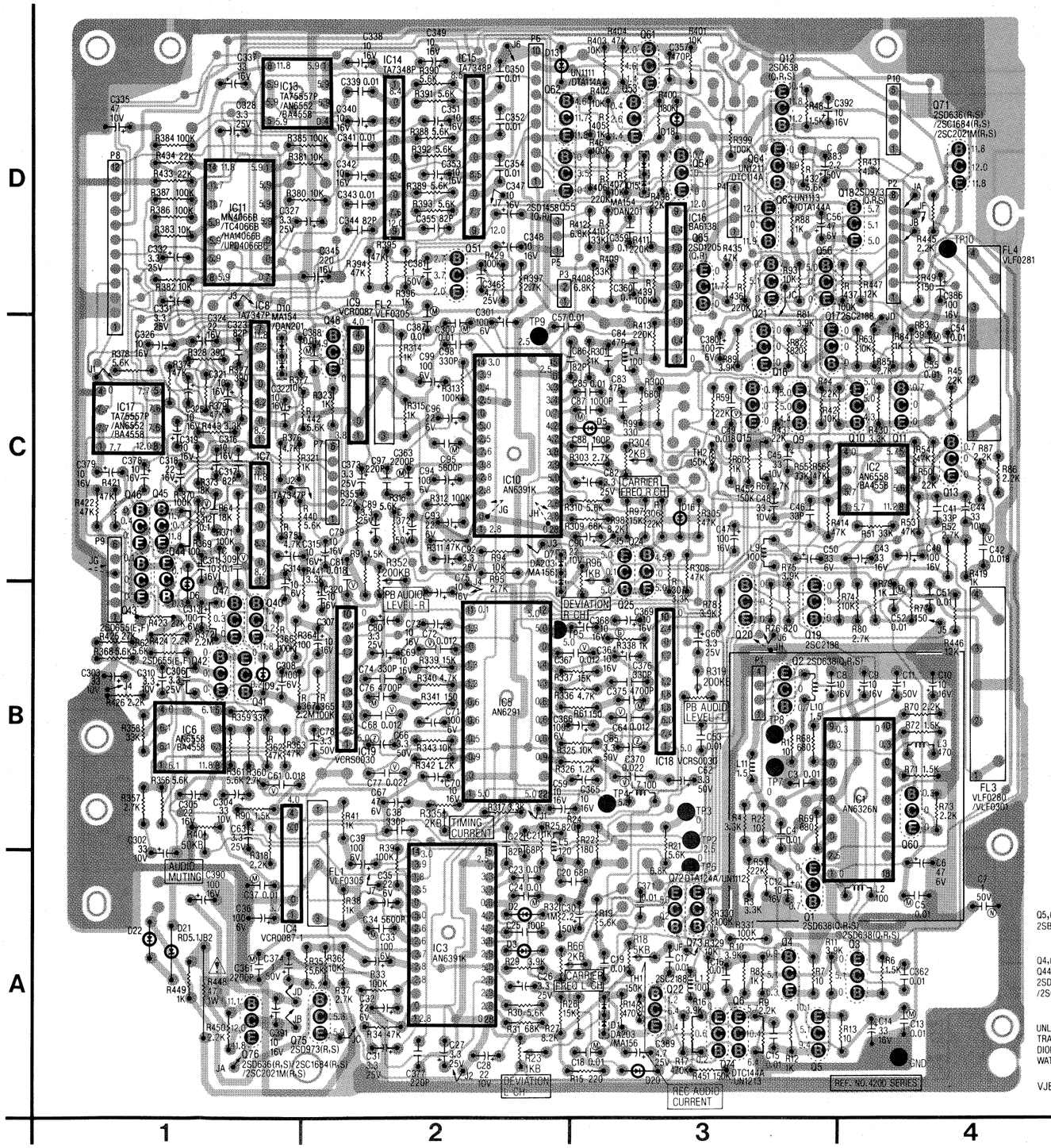
FM AUDIO C.B.A.



LOCATION OF TEST POINTS & ADJUSTMENT POINTS




# FM AUDIO C.B.A. VEPS0424B1




Q5,Q9,Q10,Q16,Q20,Q24,Q25,Q40,Q45
2SB641(Q,R,S)/ 2SA564(R,S)×9

Q4,Q6,Q11,Q13,Q15,Q21,Q41,
Q44,Q51,Q53,Q54,Q60,Q61,Q73
2SD636(Q,R,S)/2SC1684(Q,R,S)
/2SC2021M(Q,R,S)×14

UNLESS OTHERWISE SPECIFIED;
TRANSISTORS ARE UN1212 /DTC124A ,
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

VJBS0424 ①

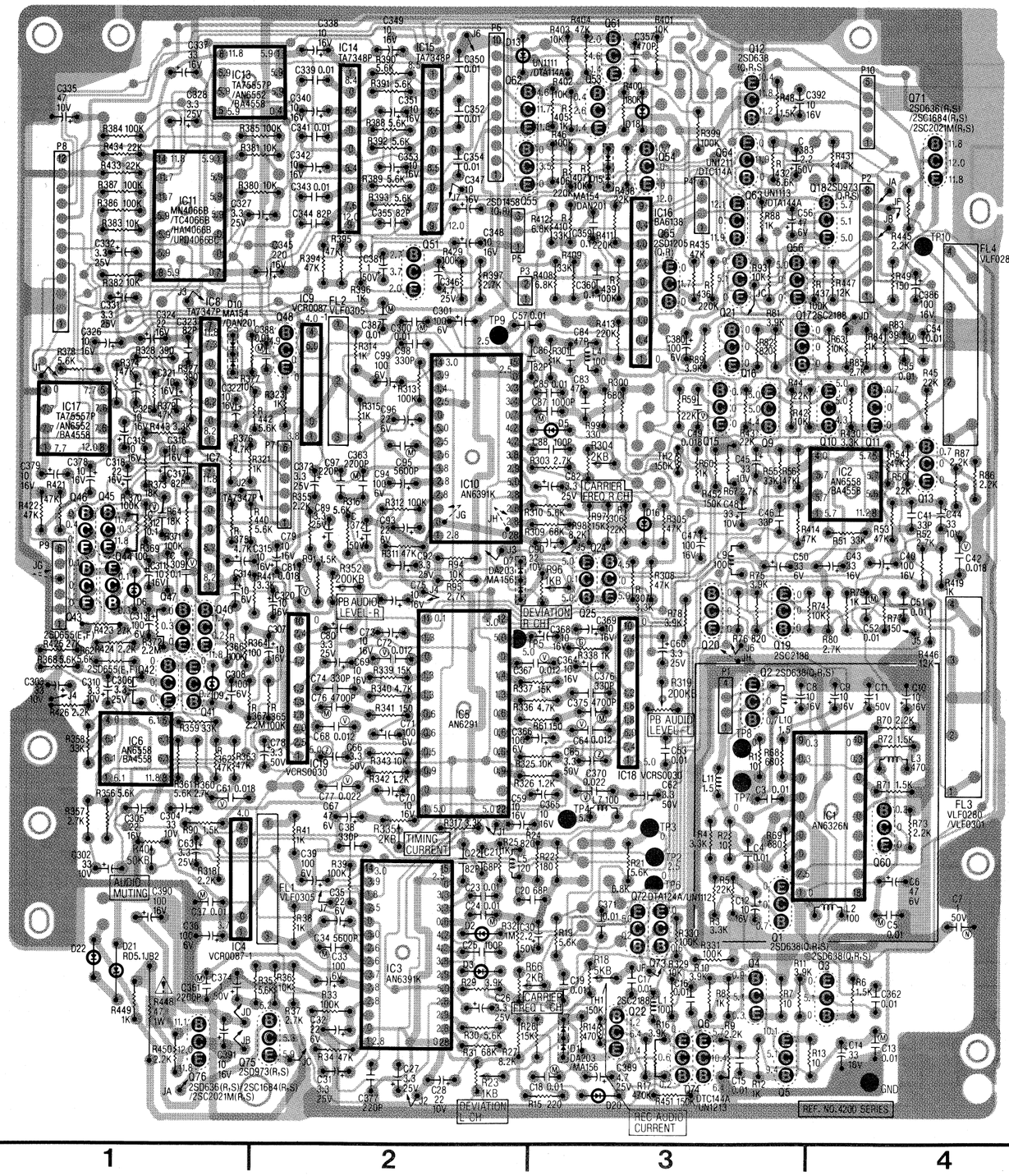
IMPORTANT SAFETY NOTICE;
COMPONENTS IDENTIFIED BY TH
SPECIAL CHARACTERISTICS IMP(
WHEN REPLACING ANY OF THES
ONLY THE SPECIFIED PARTS.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND
ELECTROSTATICALLY SENSITIVE
HANDLING TECHNIQUES DESCRIB
(ES) DEVICES" SECTION OF THIS

VOLTAGE MEASUREMENT : MONOS
IN

| FM AUDIO C.E | |
|---|---|
| Q1 | 3- |
| Q2 | 3- |
| Q3 | 4- |
| Q4 | 3- |
| Q5 | 3- |
| Q6 | 3- |
| Q9 | 3- |
| Q10 | 4- |
| Q11 | 4- |
| Q12 | 3- |
| Q13 | 4- |
| Q15 | 3- |
| Q16 | 3- |
| Q17 | 3- |
| Q18 | 4- |
| Q19 | 3- |
| Q20 | 3- |
| Q21 | 3- |
| Q22 | 3- |
| Q24 | 3- |
| Q25 | 3- |
| Q40 | 1- |
| Q41 | 1- |
| Q42 | 1- |
| Q43 | 1- |
| Q44 | 1- |
| Q45 | 1- |
| Q46 | 1- |
| Q47 | 1- |
| Q48 | 2- |
| Q51 | 2- |
| Q53 | 3- |
| Q54 | 3- |
| Q55 | 3- |
| Q56 | 3- |
| Q60 | 4- |
| Q61 | 3- |
| Q62 | 3- |
| Q63 | 3- |
| Q64 | 3- |
| Q65 | 3- |
| Q71 | 4- |
| Q72 | 3- |
| Q73 | 3- |
| Q74 | 3- |
| Q75 | 1- |
| Q76 | 1- |

# FM AUDIO C.B.A. VEPS0424B1




Q5,Q9,Q10,Q16,Q20,Q24,Q25,Q40,Q45
2SB641(Q,R,S)/2SA564(R,S)×9

Q4,Q6,Q11,Q13,Q15,Q21,Q41,
Q44,Q51,Q53,Q54,Q60,Q61,Q73
2SD636(Q,R,S)/2SC1684(Q,R,S)
/2SC2021M(Q,R,S)×14

UNLESS OTHERWISE SPECIFIED;
TRANSISTORS ARE UN1212/DTC124A,
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

VJBS0424 ①

IMPORTANT SAFETY NOTICE;
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

VOLTAGE MEASUREMENT : MONOSCOPE SIGNAL
IN SP REC MODE.

| FM AUDIO C.B.A. | |
|---|---|
| Q1 | 3-A |
| Q2 | 3-B |
| Q3 | 4-A |
| Q4 | 3-A |
| Q5 | 3-A |
| Q6 | 3-A |
| Q9 | 3-C |
| Q10 | 4-C |
| Q11 | 4-C |
| Q12 | 3-D |
| Q13 | 4-C |
| Q15 | 3-C |
| Q16 | 3-C |
| Q17 | 3-C |
| Q18 | 4-D |
| Q19 | 3-B |
| Q20 | 3-B |
| Q21 | 3-D |
| Q22 | 3-A |
| Q24 | 3-C |
| Q25 | 3-C |
| Q40 | 1-B |
| Q41 | 1-B |
| Q42 | 1-B |
| Q43 | 1-B |
| Q44 | 1-B |
| Q45 | 1-C |
| Q46 | 1-C |
| Q47 | 1-B |
| Q48 | 2-C |
| Q51 | 2-D |
| Q53 | 3-D |
| Q54 | 3-D |
| Q55 | 3-D |
| Q56 | 3-D |
| Q60 | 4-B |
| Q61 | 3-D |
| Q62 | 3-D |
| Q63 | 3-D |
| Q64 | 3-D |
| Q65 | 3-D |
| Q71 | 4-D |
| Q72 | 3-A |
| Q73 | 3-A |
| Q74 | 3-A |
| Q75 | 1-A |
| Q76 | 1-A |

P4201

| | |
|---|---|
| 1 | FM AUDIO HEAD R CH |
| 2 | FM AUDIO HEAD L CH |
| 3 | FM AUDIO HEAD R/L CH |
| 4 | GND |

P4202

| | |
|---|---|
| 1 | GND |
| 2 | EE/VV (EE Ⓗ) |
| 3 | +5V |
| 4 | EXCEPT PB Ⓗ |
| 5 | AUDIO HEAD SW |
| 6 | UNSWITCH +12V |
| 7 | SPEED MEMORY Ⓛ |
| 8 | |

P4203

| | |
|---|---|
| 1 | AUDIO |
| 2 | GND |

P4204

| | |
|---|---|
| 1 | LEVEL METER L CH |
| 2 | GND |
| 3 | LEVEL METER R CH |
| 4 | DOLBY ON Ⓗ |

P4205

| | |
|---|---|
| 1 | AUDIO R CH |
| 2 | GND |
| 3 | AUDIO L CH |

P4206

| | |
|---|---|
| 1 | +5V |
| 2 | AUDIO MIX Ⓗ |
| 3 | NORMAL AUDIO Ⓛ |
| 4 | SWITCHED +12V |
| 5 | AGC ON Ⓛ |
| 6 | AUDIO R CH Ⓗ |
| 7 | FM LED ON Ⓗ |
| 8 | AUDIO L CH Ⓗ |
| 9 | FM AUDIO Ⓗ |
| 10 | GND |

P4207

| | |
|---|---|
| 1 | GND |
| 2 | AUDIO GAIN L CH |
| 3 | GND |
| 4 | AUDIO GAIN L CH |
| 5 | AUDIO GAIN R CH |
| 6 | AUDIO GAIN R CH |

P4208

| | |
|---|---|
| 1 | NORMAL AUDIO R CH |
| 2 | GND |
| 3 | GND |
| 4 | NORMAL AUDIO L CH |
| 5 | NORMAL AUDIO R CH |
| 6 | NORMAL AUDIO L CH |
| 7 | VIDEO EE Ⓗ |
| 8 | +12V |
| 9 | DOLBY ON Ⓗ |
| 10 | AUDIO MUTE Ⓗ |
| 11 | GND |
| 12 | AUDIO EE Ⓗ |

P4209

| | |
|---|---|
| 1 | AUDIO R CH |
| 2 | GND |
| 3 | AUDIO L CH |
| 4 | GND |
| 5 | HEADPHONE L CH |
| 6 | HEADPHONE R CH |

P4210

| | |
|---|---|
| 1 | VIDEO EE Ⓗ |
| 2 | |
| 3 | DELAY REC Ⓗ |
| 4 | +12V |
| 5 | GND |

| REF.NO. / MODE | Q4201 | | | Q4202 | | | Q4203 | | | Q4204 | | | Q4205 | | | Q4206 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REC | 0 | 0.7 | 0 | 0 | 0.7 | 0 | 0 | 0 | 5.1 | 0.3 | 0.9 | 5.1 | 10.1 | 9.4 | 5.1 | 5.7 | 6.4 | 10.4 |
| PLAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REF.NO. / MODE | Q4209 | | | Q4210 | | | Q4211 | | | Q4212 | | | Q4213 | | | Q4215 | | |
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 5.0 | 4.4 | 5.0 | 5.0 | 4.3 | 5.0 | 0 | 0.7 | 0 | 0 | 0 | 11.9 | 0 | 0.7 | 0 | 0 | 0.6 | 0 |
| REC | 5.0 | 4.4 | 5.0 | 5.0 | 4.3 | 5.0 | 0 | 0.7 | 0 | 10.4 | 11.2 | 11.8 | 0 | 0.7 | 0 | 0 | 0.7 | 0 |
| PLAY | 5.0 | 5.0 | 0.1 | 5.0 | 5.0 | 0 | 0 | 0 | 5.0 | 0 | 0 | 11.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| REF.NO. / MODE | Q4216 | | | Q4217 | | | Q4218 | | | Q4219 | | | Q4220 | | | Q4221 | | |
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 4.2 | 3.6 | 2.9 | 0.3 | 1.0 | 3.6 | 5.0 | 5.7 | 5.0 | 0.3 | 1.0 | 3.7 | 4.3 | 3.7 | 2.6 | 5.0 | 5.7 | 5.1 |
| REC | 0 | 0 | 0 | 0 | 0 | 0 | 5.0 | 5.7 | 5.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5.1 |
| PLAY | 0 | 3.6 | 2.9 | 0.3 | 1.0 | 3.6 | 5.0 | 5.7 | 5.0 | 0.3 | 1.0 | 3.7 | 4.3 | 3.7 | 2.6 | 5.0 | 5.7 | 5.0 |
| REF.NO. / MODE | Q4222 | | | Q4224 | | | Q4225 | | | Q4240 | | | Q4241 | | | Q4242 | | |
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 0 | 0 | 0 | 4.9 | 4.4 | 0 | 5.0 | 4.9 | 0.2 | 11.9 | 11.8 | 0 | 0 | 0 | 0.2 | 0 | 0 | 0 |
| REC | 0.4 | 1.2 | 6.4 | 5.0 | 4.5 | 0 | 5.0 | 5.0 | 0.1 | 11.8 | 11.7 | 0.2 | 0 | 0.2 | 0.3 | 0 | 0 | 0 |
| PLAY | 0 | 0 | 0 | 4.3 | 3.6 | 4.2 | 5.0 | 4.3 | 5.0 | 11.9 | 11.8 | 0 | 0 | 0 | 0.2 | 0 | 0 | 0 |
| REF.NO. / MODE | Q4243 | | | Q4244 | | | Q4245 | | | Q4246 | | | Q4247 | | | Q4248 | | |
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 0 | 0.1 | 0 | 0.3 | 0.6 | 0.5 | 11.9 | 11.8 | 0.5 | 0 | 0 | 0.5 | 0 | 0 | 0.3 | 0 | 4.9 | 0 |
| REC | 0 | 0.1 | 0 | 0.1 | 0.3 | 0.3 | 11.8 | 11.7 | 0.3 | 0 | 0 | 0.4 | 0 | 0 | 0.3 | 0 | 4.9 | 0 |
| PLAY | 0 | 0 | 0 | 0 | 0.1 | 0.2 | 11.9 | 11.8 | 0.1 | 0 | 6.0 | 0 | 0 | 6.0 | 0 | 0 | 0 | 6.5 |
| REF.NO. / MODE | Q4251 | | | Q4253 | | | Q4254 | | | Q4255 | | | Q4256 | | | Q4260 | | |
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 2.1 | 2.7 | 3.7 | 1.4 | 0.4 | 2.6 | 0 | 0.7 | 0 | 0 | 0 | 3.5 | 0 | 0 | 5.7 | 2.5 | 3.1 | 4.9 |
| REC | 2.0 | 2.7 | 3.7 | 1.4 | 0.4 | 2.6 | 0 | 0.7 | 0 | 0 | 0 | 3.5 | 0 | 5.0 | 0 | 0 | 0.3 | 0 |
| PLAY | 2.1 | 2.7 | 3.7 | 1.4 | 0.4 | 2.6 | 0 | 0.7 | 0 | 0 | 0 | 3.5 | 0 | 0 | 5.7 | 2.5 | 3.1 | 4.9 |
| REF.NO. / MODE | Q4261 | | | Q4262 | | | Q4263 | | | Q4264 | | | Q4265 | | | Q4271 | | |
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 1.4 | 2.1 | 4.6 | 11.9 | 4.6 | 11.8 | 12.0 | 11.9 | 0 | 0 | 0 | 11.9 | 0 | 0 | 11.8 | 11.9 | 11.8 | 12.0 |
| REC | 1.4 | 2.0 | 4.6 | 11.8 | 4.6 | 11.7 | 12.1 | 11.9 | 0 | 0 | 0 | 11.9 | 0 | 0 | 11.7 | 11.8 | 11.8 | 12.0 |
| PLAY | 1.4 | 2.0 | 4.6 | 11.9 | 4.6 | 11.8 | 12.0 | 12.0 | 0 | 0 | 0 | 11.9 | 0 | 0 | 11.8 | 11.9 | 11.8 | 12.0 |
| REF.NO. / MODE | Q4272 | | | Q4273 | | | Q4274 | | | Q4275 | | | Q4276 | | | | | |
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | | | |
| STOP | 5.0 | ★ | 0.2 | 0 | 0.6 | ★ | 0 | 0.2 | 0.6 | 5.2 | 5.9 | 5.3 | 11.1 | 11.8 | 12.0 | | | |
| REC | 5.0 | ★ | 0.2 | 0 | 0.6 | ★ | 0 | 0.2 | 0.6 | 5.2 | 5.9 | 5.3 | 11.1 | 11.8 | 12.0 | | | |
| PLAY | 5.0 | ★ | 0.2 | 0 | 0.7 | ★ | 0 | 0.2 | 0.6 | 5.2 | 5.9 | 5.3 | 11.1 | 11.8 | 12.0 | | | |

| REF.NO. / MODE | IC4201 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | | |
| STOP | 4.9 | 0 | 0.9 | 0.7 | 0 | 0.7 | 0.9 | 3.1 | 3.2 | 2.8 | 3.1 | 1.7 | ★ | 0 | ★ | ★ | ★ | ★ | | |
| REC | 0 | 2.5 | 0 | 0 | 0 | 0 | 0 | 0.3 | 0.3 | 0 | 0.3 | 0 | ★ | 0 | ★ | ★ | ★ | ★ | | |
| PLAY | 4.9 | 2.5 | 0.9 | 0.7 | 0 | 0.7 | 0.9 | 3.1 | 3.2 | 2.8 | 3.1 | 1.7 | ★ | 0 | ★ | ★ | ★ | ★ | | |

| REF.NO. / MODE | IC4202 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | |
| STOP | 5.7 | 5.8 | 5.8 | 0 | 5.8 | 5.8 | 5.7 | 11.3 | | | | | | | | | | | | |
| REC | 5.7 | 5.7 | 5.7 | 0 | 5.7 | 5.7 | 5.6 | 11.2 | | | | | | | | | | | | |
| PLAY | 5.7 | 5.8 | 5.8 | 0 | 5.8 | 5.8 | 5.7 | 11.3 | | | | | | | | | | | | |

| REF.NO. / MODE | IC4203 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 2.8 | 0 | ★ | 2.8 | 2.8 | 3.7 | 2.6 | 2.5 | 5.0 | 0 | 0 | 1.8 | 3.9 | 3.0 | 2.5 | 0 | 3.3 | 3.3 | 0.6 | 4.2 |
| REC | 2.8 | 0 | ★ | 2.8 | 2.8 | 3.7 | 2.6 | 2.6 | 5.0 | 0 | 2.5 | 1.8 | 3.9 | 3.0 | 2.5 | 0 | 3.3 | 3.3 | 0.6 | 4.2 |
| PLAY | 2.8 | 0 | ★ | 2.8 | 2.8 | 2.2 | 2.3 | 2.2 | 4.9 | 0 | 2.5 | 1.8 | 3.4 | 2.4 | 2.5 | 0 | 3.1 | 3.7 | 0.7 | 4.1 |
| REF.NO. | IC4203 | | | | | | | | IC4204 | | | | | | | | | | | |
| MODE | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 1 | 2 | 3 | 4 | | | | | | | | |
| STOP | 4.2 | 3.8 | 2.9 | 5.0 | 2.8 | 2.9 | 2.8 | 0 | 3.7 | 0 | 5.0 | 4.0 | | | | | | | | |
| REC | 4.2 | 3.8 | 2.9 | 5.0 | 2.8 | 2.9 | 2.8 | 0 | 3.7 | 0 | 5.0 | 4.0 | | | | | | | | |
| PLAY | 4.1 | 3.8 | 2.9 | 0 | 2.8 | 2.8 | 2.8 | 0 | 2.2 | 0 | 5.0 | 2.1 | | | | | | | | |

| REF.NO. / MODE | IC4205 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 5.0 | 0 | 0.9 | 0.5 | 0.6 | 0.6 | 1.3 | 1.3 | 0 | 1.3 | 0.1 | 5.0 | 5.0 | 0 | 1.4 | 1.3 | 0.6 | 0.6 | 0.6 | 0.9 |
| REC | 5.0 | 0 | 0.9 | 0.5 | 0.6 | 0.6 | 1.3 | 1.3 | 0 | 1.3 | 0.1 | 5.0 | 5.0 | 0 | 1.4 | 1.3 | 0.6 | 0.6 | 0.6 | 0.9 |
| PLAY | 5.0 | 0 | 0.9 | 0.5 | 0.6 | 0.6 | 1.3 | 1.3 | 1.3 | 1.3 | 5.0 | 0.1 | 5.0 | 1.3 | 1.4 | 1.3 | 0.6 | 0.6 | 0.5 | 0.9 |
| REF.NO. | IC4205 | | IC4206 | | | | | | | | IC4207 | | | | | | | | | |
| MODE | 21 | 22 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |
| STOP | ★ | 5.0 | 6.2 | 6.2 | 6.2 | 0 | 6.2 | 6.2 | 6.2 | 11.9 | 8.3 | 0 | 8.3 | 0 | 0 | 7.4 | 11.9 | | | |
| REC | ★ | 5.0 | 6.1 | 6.1 | 6.1 | 0 | 6.1 | 6.1 | 6.1 | 11.8 | 8.2 | 0 | 8.2 | 0 | 0 | 7.4 | 11.8 | | | |
| PLAY | ★ | 5.0 | 6.1 | 6.2 | 6.1 | 0 | 6.1 | 6.2 | 6.1 | 11.9 | 8.2 | 0 | 8.3 | 0 | 0 | 7.4 | 11.9 | | | |

VOLTAGE MEASUREMENT:
MONOSCOPE SIGNAL IN SP MODE.

★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

| REF.NO. / MODE | IC4208 | | | | | | | IC4209 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 |
| STOP | 8.3 | 0 | 8.3 | 0 | 0 | 7.4 | 11.9 | 3.8 | 0 | 5.0 | 4.0 |
| REC | 8.2 | 0 | 8.2 | 0 | 0 | 7.3 | 11.8 | 3.8 | 0 | 5.0 | 4.0 |
| PLAY | 8.2 | 0 | 8.3 | 0 | 0 | 7.3 | 11.9 | 2.3 | 0 | 5.0 | 2.1 |

| REF.NO. / MODE | IC4210 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 2.8 | 0 | ★ | 2.8 | 2.8 | 3.7 | 2.6 | 2.5 | 4.9 | 0 | 0 | 1.4 | 3.9 | 3.0 | 2.5 | 0 | 3.3 | 3.4 | 0.7 | 4.2 |
| REC | 2.8 | 0 | ★ | 2.8 | 2.8 | 3.8 | 2.6 | 2.5 | 5.0 | 0 | 2.5 | 1.4 | 3.9 | 3.0 | 2.5 | 0 | 3.3 | 3.4 | 0.7 | 4.2 |
| PLAY | 2.8 | 0 | ★ | 2.8 | 2.8 | 2.3 | 2.4 | 2.1 | 5.0 | 0 | 2.5 | 1.5 | 3.4 | 2.4 | 2.5 | 0 | 3.1 | 3.7 | 0.8 | 4.1 |

| REF.NO. / MODE | IC4210 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| STOP | 4.2 | 3.8 | 3.0 | 5.0 | 2.8 | 2.8 | 2.8 | 0 |
| REC | 4.2 | 3.8 | 2.9 | 5.0 | 2.8 | 2.8 | 2.8 | 0 |
| PLAY | 4.1 | 3.8 | 2.9 | 0 | 2.8 | 2.8 | 2.8 | 0 |

| REF.NO. / MODE | IC4211 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| STOP | 6.0 | 5.9 | 5.9 | 5.9 | 0 | 0 | 0 | 5.9 | 5.9 | 5.9 | 6.0 | 11.8 | 11.9 | 11.9 |
| REC | 5.9 | 5.9 | 5.9 | 5.9 | 0 | 0 | 0 | 5.9 | 5.9 | 5.9 | 5.9 | 11.7 | 11.7 | 11.8 |
| PLAY | 5.9 | 5.9 | 5.9 | 5.9 | 0 | 0 | 0 | 5.9 | 5.9 | 5.9 | 5.9 | 11.8 | 11.8 | 11.9 |

| REF.NO. / MODE | IC4213 | | | | | | | | IC4214 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| STOP | 6.0 | 6.0 | 6.0 | 0 | 5.9 | 5.9 | 6.0 | 11.9 | 8.5 | 0 | 8.5 | 0.1 | 0 | 8.5 | 0.1 | 7.7 | 12.0 |
| REC | 5.9 | 5.9 | 5.9 | 0 | 5.9 | 5.9 | 5.9 | 11.8 | 8.4 | 0 | 8.4 | 0 | 0 | 8.4 | 0 | 7.6 | 12.0 |
| PLAY | 6.0 | 6.0 | 5.9 | 0 | 5.9 | 6.0 | 6.0 | 11.9 | 8.4 | 0 | 8.4 | 0 | 0 | 8.4 | 0 | 7.6 | 12.1 |

| REF.NO. / MODE | IC4215 | | | | | | | | | IC4216 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| STOP | 8.5 | 0 | 8.5 | 0 | 0 | 8.5 | 0 | 7.7 | 12.1 | 0 | 0.4 | 1.0 | 2.0 | 0 | 2.0 | 1.0 | 0.4 | 12.1 | |
| REC | 8.5 | 0 | 8.5 | 0 | 0 | 8.5 | 0 | 7.7 | 12.0 | 0 | 0.4 | 1.0 | 2.0 | 0 | 2.0 | 1.0 | 0.4 | 12.0 | |
| PLAY | 8.5 | 0 | 8.5 | 0 | 0 | 8.5 | 0 | 7.7 | 12.1 | 0 | 0.4 | 1.0 | 2.0 | 0 | 2.0 | 1.0 | 0.3 | 12.0 | |

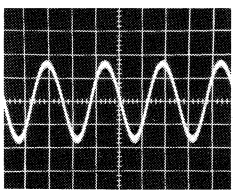
| REF.NO. / MODE | IC4217 | | | | | | | | IC4218 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| STOP | 7.7 | 7.7 | 7.7 | 0 | 7.7 | 7.7 | 7.7 | 12.0 | 5.0 | 2.5 | 5.0 | 1.8 | 1.7 | 1.2 | 1.2 | 0 | 2.4 | 0 | |
| REC | 7.7 | 7.7 | 7.7 | 0 | 7.7 | 7.6 | 7.6 | 12.0 | 5.0 | 2.4 | 5.0 | 1.8 | 1.8 | 1.2 | 1.2 | 0 | 2.4 | 0 | |
| PLAY | 7.7 | 7.7 | 7.7 | 0 | 7.7 | 7.6 | 7.6 | 12.0 | 5.0 | 2.4 | 0 | 1.7 | 0 | 1.2 | 1.7 | 4.2 | 2.4 | 0 | |

| REF.NO. / MODE | IC4219 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| STOP | 5.0 | 2.5 | 5.0 | 1.8 | 1.8 | 1.2 | 1.2 | 0 | 2.4 | 0 |
| REC | 5.0 | 2.5 | 5.0 | 1.8 | 1.8 | 1.2 | 1.2 | 0 | 2.4 | 0 |
| PLAY | 5.0 | 2.4 | 0 | 1.7 | 0 | 1.2 | 1.7 | 4.2 | 2.4 | 0 |

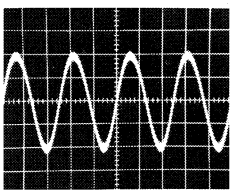
| REF.NO. / MODE | TP4202 | TP4203 | TP4204 | TP4205 | TP4206 | TP4207 | TP4208 | TP4209 |
|---|---|---|---|---|---|---|---|---|
| STOP | 2.5 | 0 | 5.0 | 5.0 | 0 | 0 | 0 | 2.5 |
| REC | 2.5 | 0 | 5.0 | 5.0 | 0 | 0 | 0 | 2.5 |
| PLAY | 2.5 | 0 | 5.0 | 5.0 | 0 | 0 | 0 | 2.5 |

VOLTAGE MEASUREMENT:
MONOSCOPE SIGNAL IN SP MODE.

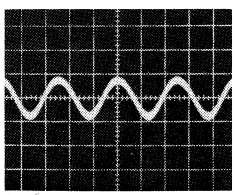
★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.



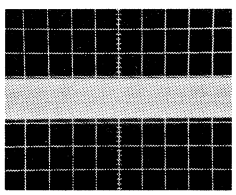
IC4206 ⑥ REC.SP.LP.SLP.
50mV/1msec. div.



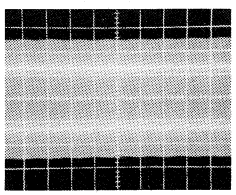
IC4205 ⑮ REC.SP.LP.SLP.
20mV/1msec. div.



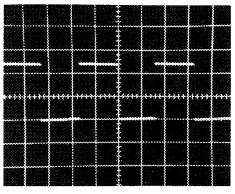
IC4203 ㉓ REC.SP.LP.SLP.
50mV/1msec. div.



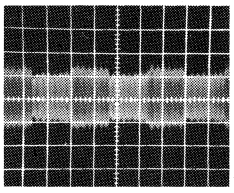
TP4203 REC.SP.LP.SLP.
20mV/10Usec. div.



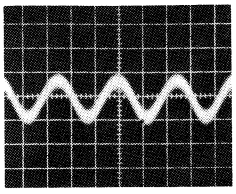
TP4207(HOT) REC.SP.LP.SLP.
TP4208(GND)
50mV/2msec. div.



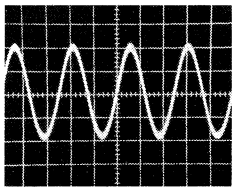
IC4201 ② PB.SP.LP.SLP.
2V/10msec. div.



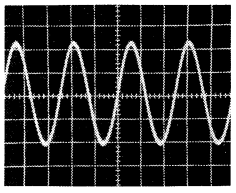
IC4203 ⑮ PB.SP.LP.SLP.
0.1V/10msec. div.



IC4203 ⑧ PB.SP.LP.SLP.
20mV/1msec. div.



IC4218 ⑨ PB.SP.LP.SLP.
20mV/1msec. div.

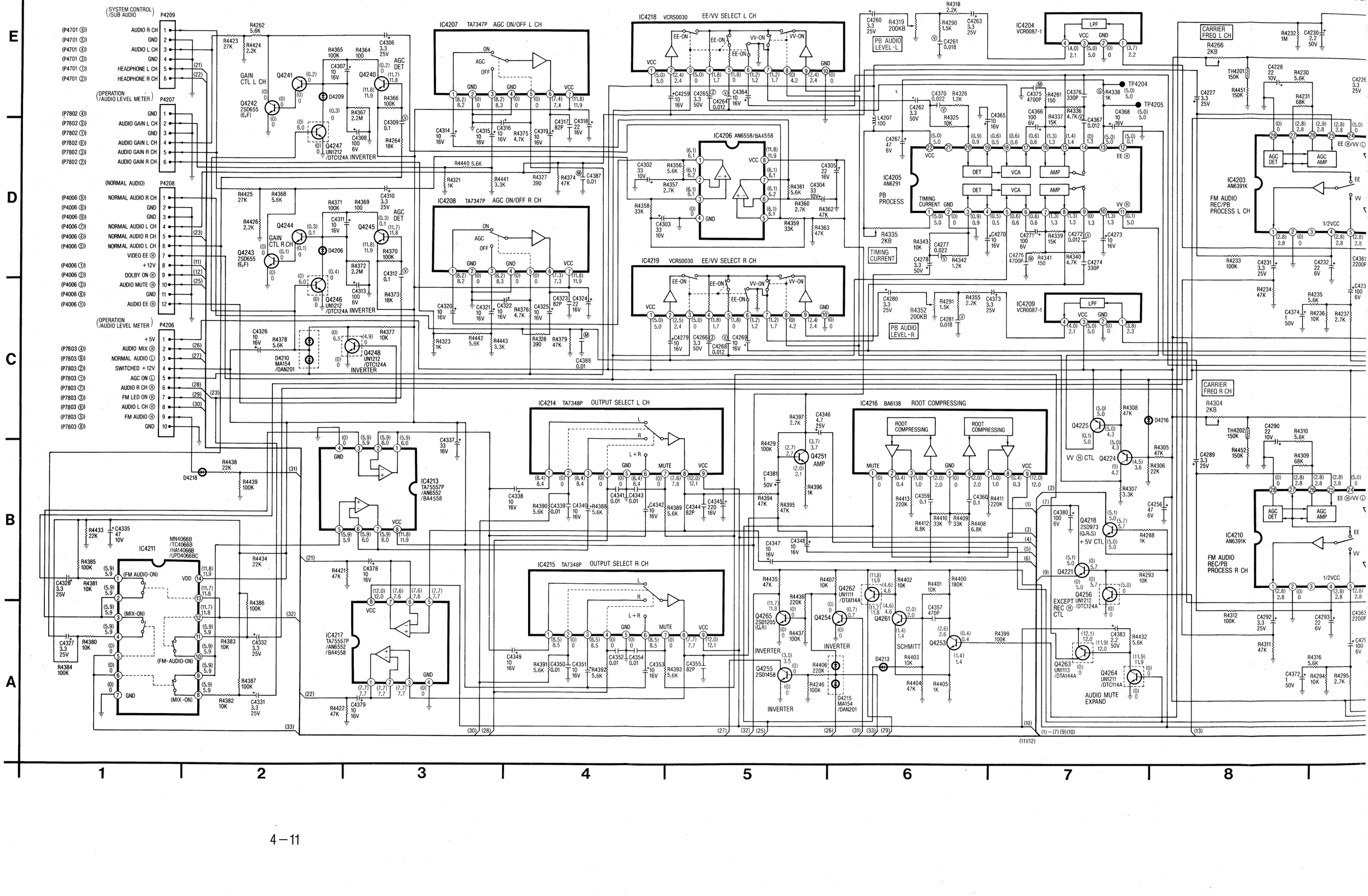


IC4203 ① PB.SP.LP.SLP.
0.5V/1msec. div.

# FM AUDIO SCHEMATIC DIAGRAM

VOLTAGE MEASUREMENT:
MONOSCOPE SIGNAL IN SP REC MODE WITH BRACKET.
MONOSCOPE SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MAN
ELECTROSTATICALLY SENSITIVE AND
HANDLING TECHNIQUES DESCRIBED U
(ES) DEVICES" SECTION OF THIS SE



SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

IMPORTANT SAFETY NOTICE;
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

4-11
FM AUDIO
SCHEMATIC DIAGRAM

| FM AUDIO | |
|---|---|
| Q4201 | 13-D |
| Q4202 | 13-D |
| Q4203 | 13-D |
| Q4204 | 12-D |
| Q4205 | 12-E |
| Q4206 | 12-E |
| Q4209 | 10-D |
| Q4210 | 11-D |
| Q4211 | 11-D |
| Q4212 | 12-D |
| Q4213 | 12-C |
| Q4215 | 12-B |
| Q4216 | 12-A |
| Q4217 | 13-A |
| Q4218 | 7-B |
| Q4219 | 13-B |
| Q4220 | 13-B |
| Q4221 | 7-B |
| Q4222 | 11-D |
| Q4224 | 7-B |
| Q4225 | 7-C |
| Q4240 | 3-E |
| Q4241 | 2-E |
| Q4242 | 2-E |
| Q4243 | 2-D |
| Q4244 | 2-D |
| Q4245 | 3-D |
| Q4246 | 2-C |
| Q4247 | 2-D |
| Q4248 | 3-C |
| Q4251 | 5-B |
| Q4253 | 6-A |
| Q4254 | 6-A |
| Q4255 | 5-A |
| Q4256 | 7-B |
| Q4260 | 13-C |
| Q4261 | 6-A |
| Q4262 | 6-B |
| Q4263 | 7-A |
| Q4264 | 7-A |
| Q4265 | 5-A |
| Q4271 | 13-A |
| Q4272 | 14-E |
| Q4273 | 14-E |
| Q4274 | 15-E |
| Q4275 | 11-A |
| Q4276 | 11-A |

NOTE:
BELOW ARE EXACT DIAGRAMS OF NPN TRANSISTOR (DTC114A/UN1211, DTC124A/UN1212, DTC144A/UN1213) AND PNP TRANSISTORS(DTA114A/UN1111, DTA124A/UN1112, DTA144A/UN1113) WHICH ARE SHOWN ABRIDGED IN THE ABOVE SCHEMATIC DIAGRAM.

NPN TRANSISTORS
(DTC114A/UN1211 (R=10K))
(DTC124A/UN1212 (R=22K))
(DTC144A/UN1213 (R=47K))

PNP TRANSISTORS
(DTA114A/UN1111 (R=10K))
(DTA124A/UN1112 (R=22K))
(DTA144A/UN1113 (R=47K))

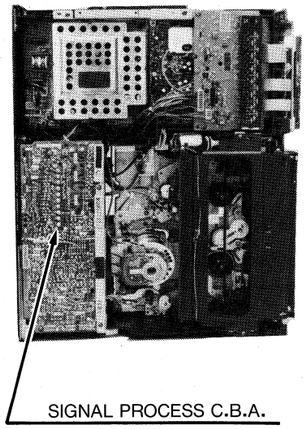
UNLESS OTHERWISE SPECIFIED;
PNP TRANSISTORS ARE 2SB641(Q,R,S) /2SA564(R,S),
NPN TRANSISTORS ARE 2SD636(Q,R,S) /2SC1684(Q,R,S)/2SC2021M(Q,R,S),
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.4200 SERIES SCHEMATIC DIAGRAM···R4202
(R4202 IS ABBREVIATED TO R2)
(R4302 IS ABBREVIATED TO R302)
(R4402 IS ABBREVIATED TO R402)

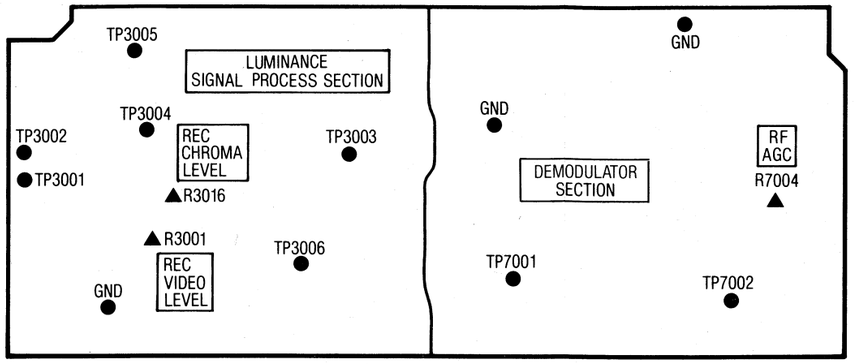
VJBS0424

8 9 10 11 12 13 14 15

4-12
SIGNAL PROCESS
C.B.A.




## LOCATION OF TEST POINTS & ADJUSTMENT POINTS




P3001

| | |
|---|---|
| 1 | EXCEPT PB Ⓗ |
| 2 | EE/VV(EE Ⓗ) |
| 3 | LP/SLP Ⓗ |
| 4 | SLP Ⓗ |
| 5 | CUE/REVIEW/SS Ⓗ |
| 6 | DELAY REC Ⓗ |
| 7 | PB Ⓗ |
| 8 | 3.58MHz |
| 9 | HEAD SW |
| 10 | PICTURE CTL |
| 11 | VSS |
| 12 | ROTARY SW |

P3002

| | |
|---|---|
| 1 | AUDIO |
| 2 | AUDIO |
| 3 | GND |
| 4 | VIDEO |
| 5 | GND |
| 6 | VIDEO |
| 7 | GND |
| 8 | VIDEO |

P3003

| | |
|---|---|
| 1 | UNSWITCH +12V |
| 2 | +5V |
| 3 | +12V |
| 4 | GND |

P3004

| | |
|---|---|
| 1 | HEAD SW |
| 2 | V-LOCK |
| 3 | ENV DET |
| 4 | V-PULSE |

P3005

| | |
|---|---|
| 1 | AUDIO |
| 2 | GND |

P3006

| | |
|---|---|
| 1 | GND |
| 2 | DELAY REC Ⓗ |
| 3 | +12V |

P4501

| | |
|---|---|
| 1 | GND |
| 2 | FULL ERASE |

P7001

| | |
|---|---|
| 1 | CATV Ⓗ |
| 2 | AUDIO DEFEAT |
| 3 | |
| 4 | BU |
| 5 | BS |
| 6 | BV |
| 7 | AFT SW |
| 8 | BT |
| 9 | GND |
| 10 | TV/VCR |

PIN (TO HEAD AMP)

| | |
|---|---|
| 1 | GND |
| 2 | REC VIDEO |
| 3 | REC CHROMA |
| 4 | AUDIO MUTE Ⓛ |
| 5 | DELAY REC Ⓗ |
| 6 | HEAD SW |
| 7 | GND |
| 8 | PB VIDEO |
| 9 | ENV DET |
| 10 | PB Ⓗ |
| 11 | PB CHROMA |
| 12 | HEAD SW |
| 13 | LP/SLP Ⓗ |
| 14 | SLP Ⓗ |
| 15 | GND |

PIN (TO LUMINANCE)

| | |
|---|---|
| 1 | GND |
| 2 | +5V |
| 3 | REC LUMINANCE |
| 4 | HSS |
| 5 | HEAD SW |
| 6 | VIDEO |
| 7 | GND |
| 8 | VIDEO |
| 9 | ARTIFICIAL V SYNC |
| 10 | PB CHROMA |
| 11 | EE/VV(EE Ⓗ) |
| 12 | LP/SLP Ⓗ |
| 13 | PB VIDEO |
| 14 | DOC DET |
| 15 | PICTURE CTL |
| 16 | PB Ⓗ |
| 17 | GND |

PIN (TO CHROMINANCE)

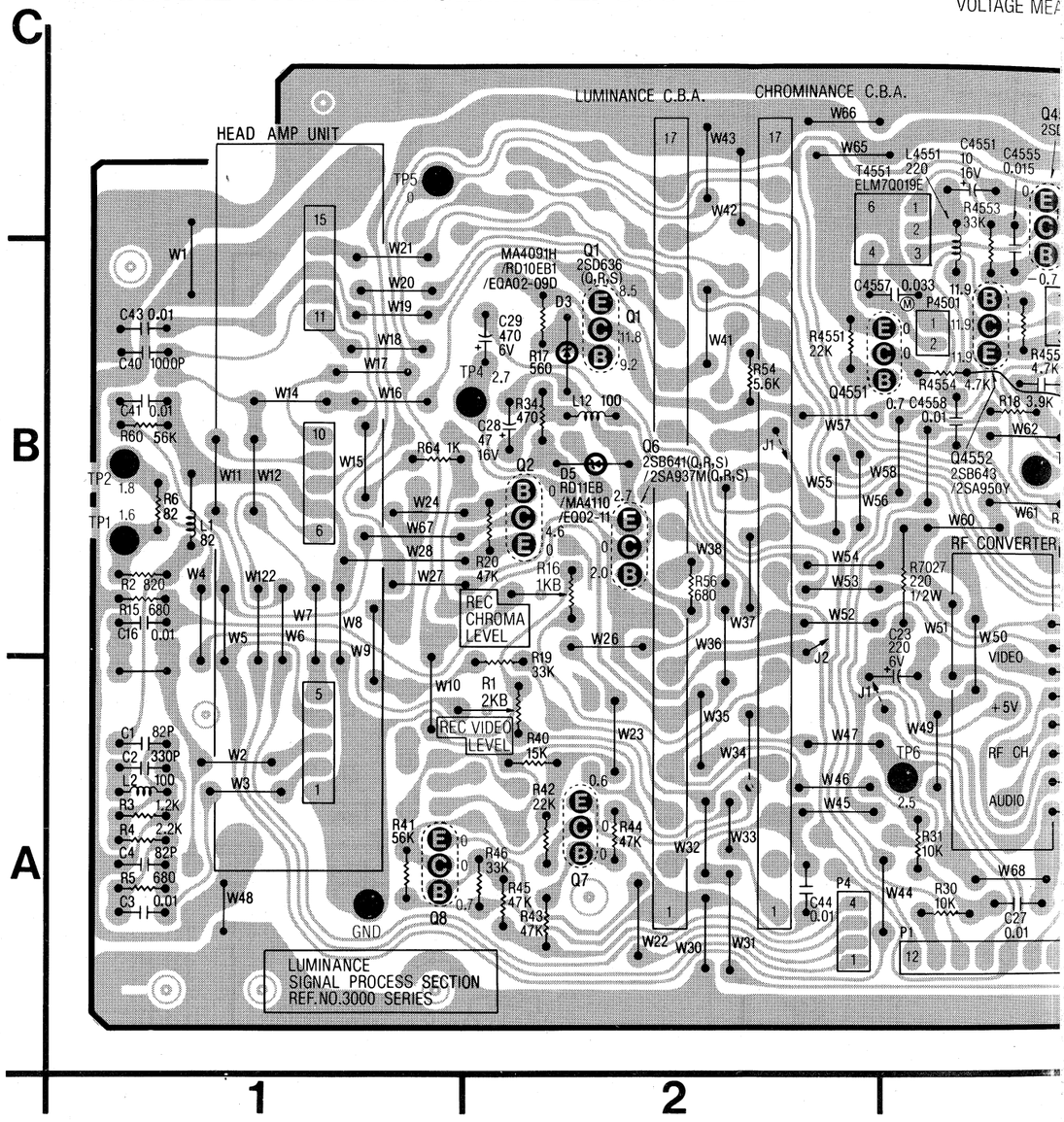
| | |
|---|---|
| 1 | PB Ⓗ |
| 2 | DOC |
| 3 | +5V |
| 4 | CUE/REVIEW/SS Ⓗ |
| 5 | HSS PULSE |
| 6 | HSS |
| 7 | VIDEO |
| 8 | ROTARY SW |
| 9 | PB CHROMA |
| 10 | REC CHROMA |
| 11 | 3.58MHz |
| 12 | DELAY REC Ⓗ |
| 13 | SLP Ⓗ |
| 14 | LP/SLP Ⓗ |
| 15 | GND |
| 16 | PB CHROMA |
| 17 | GND |

PIN (TO TV DEMODULATOR)

| | |
|---|---|
| 1 | UHF/VHF AGC |
| 2 | RF AGC |
| 3 | GND |
| 4 | IF |
| 5 | GND |
| 6 | AFT SW |
| 7 | GND |
| 8 | +12V |
| 9 | AFT |
| 10 | VIDEO |
| 11 | |
| 12 | +12V |
| 13 | |
| 14 | GND |
| 15 | AUDIO |

## SIGNAL PROCESS C.B.A. VEPS0344E1

LUMINANCE S
VOLTAGE MEA




| REF.NO. / MODE | Q3001 | | | Q3002 | | | Q3006 | | | Q3007 | | | Q3008 | | | Q3010 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 0 | −0.2 | −0.2 | 0 | 0 | 4.6 | 2.7 | 1.9 | 0 | 0 | 0.6 | 0 | 0 | 0.7 | 0 | 5.1 | 5.0 | 0.1 |
| REC | 8.5 | 9.2 | 11.8 | 0 | 0 | 4.6 | 2.7 | 1.9 | 0 | 0 | 0.6 | 0 | 0 | 0.7 | 0 | 5.1 | 5.0 | 0.1 |
| PLAY | 0 | 0 | 0 | 0 | 0 | 4.6 | 2.7 | 1.9 | 0 | 0 | 0.6 | 0 | 0 | 0.7 | 0 | 5.1 | 4.0 | 4.7 |
| CUE | 0 | 0 | 0 | 0 | 0.7 | 0 | 2.7 | 1.9 | 0 | 0 | 0.6 | 0 | 0.2 | 0.8 | 0.2 | 5.1 | 4.0 | 4.7 |
| REV | 0 | 0 | 0 | 0 | 0.7 | 0 | 2.7 | 2.0 | 0 | 0 | 0.6 | 0 | 0.2 | 0.8 | 0.2 | 5.1 | 4.0 | 4.7 |

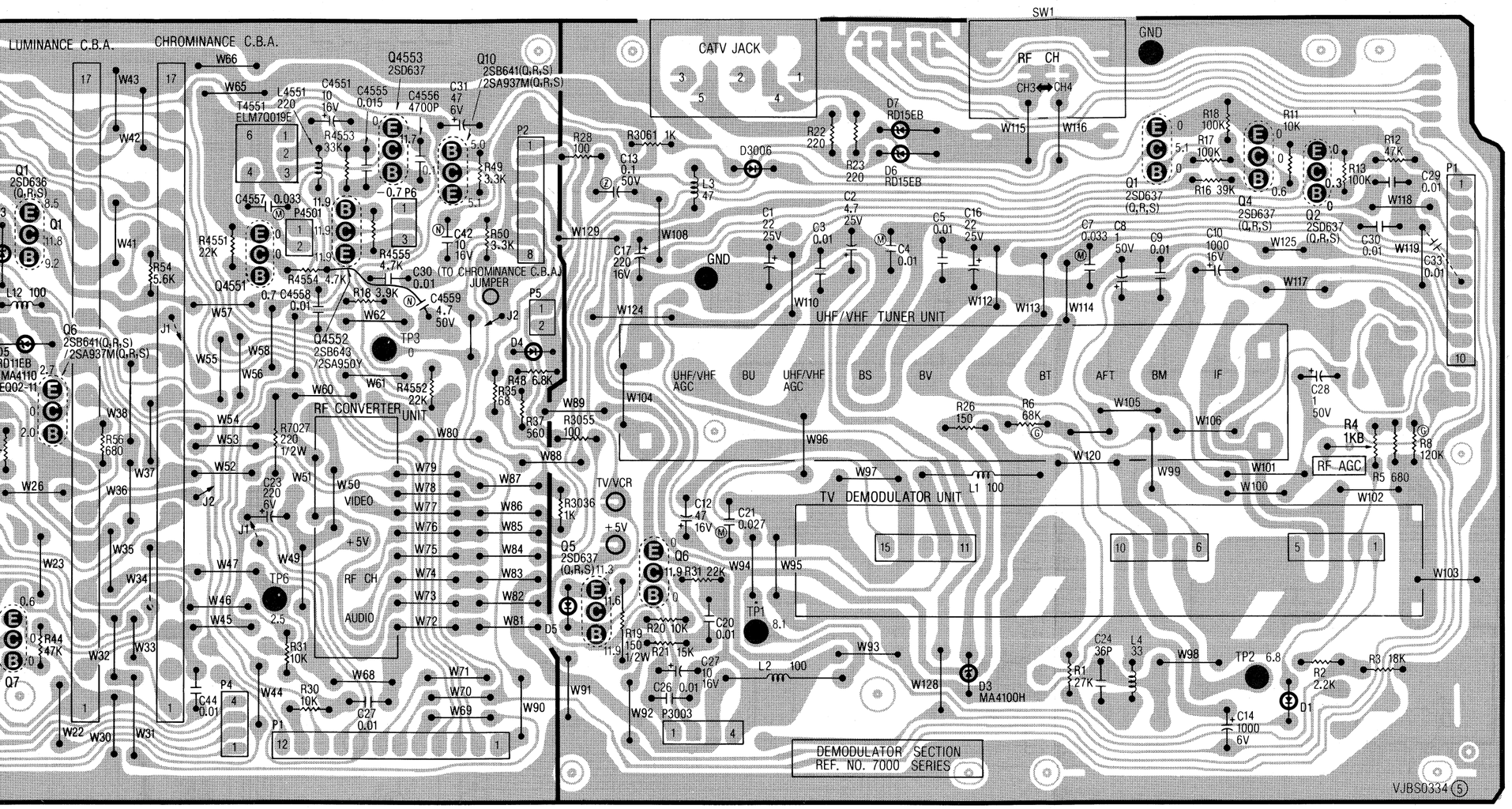
| REF.NO. / MODE | Q4551 | | | Q4552 | | | Q4553 | | |
|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C |
| STOP | 0 | 0 | 12.0 | 12.1 | 12.1 | −0.2 | 0 | −0.2 | −0.2 |
| REC | 0 | 0.7 | 0 | 12.1 | 11.3 | 12.0 | 0 | −0.7 | 11.9 |
| PLAY | 0 | 0 | 12.0 | 12.1 | 12.1 | 0.2 | 0 | 0.2 | 0.2 |
| CUE | 0 | 0 | 12.0 | 12.1 | 12.1 | 0.2 | 0 | 0.2 | 0.2 |
| REV | 0 | 0 | 12.0 | 12.1 | 12.1 | 0.2 | 0 | 0.2 | 0.2 |

# VEPS0344E1

LUMINANCE SIGNAL PROCESS SECTION
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL
IN SP REC MODE.

DEMODULATOR SECTION
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL
IN STOP MODE.

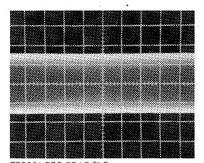
SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

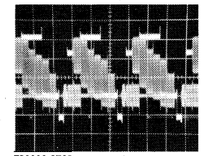


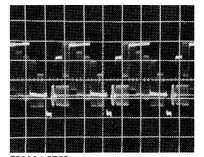

| LUMINANCE SIGNAL PROCESS SECTION | |
|---|---|
| Q1 | 2-B |
| Q2 | 2-B |
| Q6 | 2-B |
| Q7 | 2-A |
| Q8 | 1-A |
| Q10 | 3-C |
| Q4551 | 2-B |
| Q4552 | 3-B |
| Q4553 | 3-C |

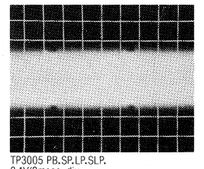
| DEMODULATOR SECTION | |
|---|---|
| Q1 | 5-B |
| Q2 | 6-B |
| Q4 | 5-B |
| Q5 | 3-A |
| Q6 | 4-A |

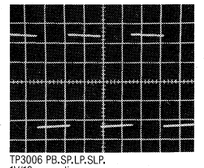
UNLESS OTHERWISE SPECIFIED;
TRANSISTORS ARE
2SD636(Q,R,S)/2SC2021M(Q,R,S),
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.


TP3001 REC.SP.LP.SLP.
0.2V/10Usec. div.


TP3003 STOP.
0.2V/20Usec. div.


TP3004 STOP.
0.5V/20Usec. div.

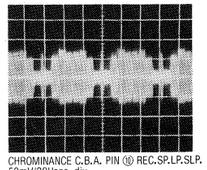

TP3005 PB.SP.LP.SLP.
0.1V/2msec. div.

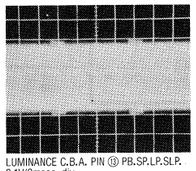

TP3006 PB.SP.LP.SLP.
1V/10msec. div.

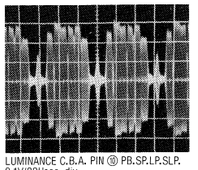
| | Q3007 | | | Q3008 | | | Q3010 | | |
|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C |
| STOP | 0 | 0.6 | 0 | 0 | 0.7 | 0 | 5.1 | 5.0 | 0.1 |
| REC | 0 | 0.6 | 0 | 0 | 0.7 | 0 | 5.1 | 5.0 | 0.1 |
| PLAY | 0 | 0.6 | 0 | 0 | 0.7 | 0 | 5.1 | 4.0 | 4.7 |
| CUE | 0 | 0.6 | 0 | 0.2 | 0.8 | 0.2 | 5.1 | 4.0 | 4.7 |
| REV | 0 | 0.6 | 0 | 0.2 | 0.8 | 0.2 | 5.1 | 4.0 | 4.7 |

| MODE \ REF.NO. | TP3001 | TP3002 | TP3003 | TP3004 | TP3005 | TP3006 |
|---|---|---|---|---|---|---|
| STOP | 1.3 | 1.4 | 3.4 | 2.6 | 0 | 4.9 |
| REC | 1.3 | 1.4 | 3.3 | 2.6 | 0 | 2.4 |
| PLAY | 1.5 | 1.9 | 3.1 | 2.7 | 2.6 | 2.4 |
| CUE | 1.5 | 1.6 | 3.0 | 2.7 | 2.6 | 2.4 |
| REV | 1.5 | 1.6 | 2.9 | 2.7 | 2.6 | 2.4 |

VOLTAGE MEASUREMENT:
1. CUE, REVIEW.
   COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
   COLOR BAR SIGNAL IN SP MODE.


CHROMINANCE C.B.A. PIN ⑯ REC.SP.LP.SLP.
50mV/20Usec. div.


LUMINANCE C.B.A. PIN ⑪ PB.SP.LP.SLP.
0.1V/2msec. div.


LUMINANCE C.B.A. PIN ⑨ PB.SP.LP.SLP.
0.1V/20Usec. div.

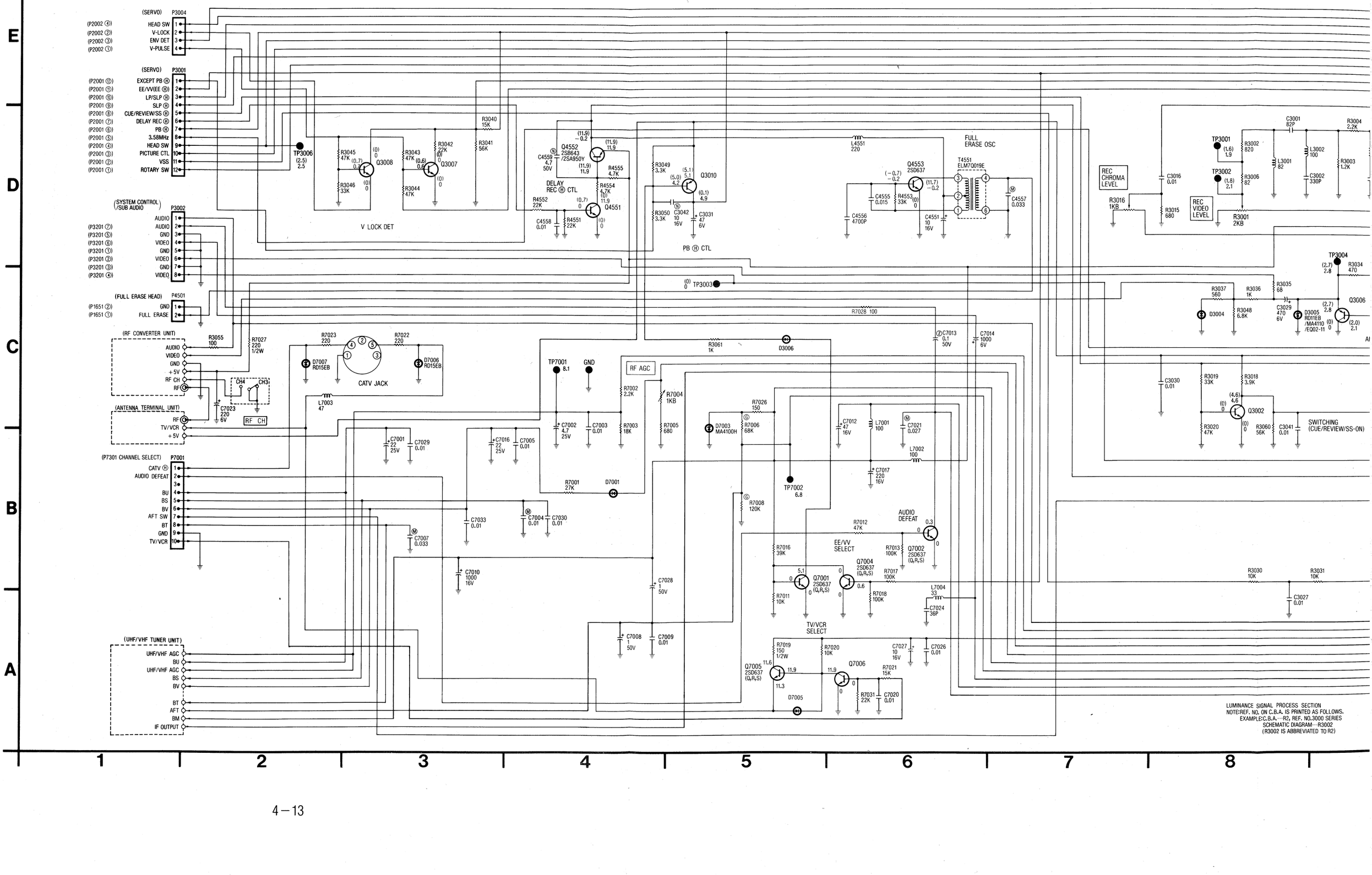
# SIGNAL PROCESS SCHEMATIC DIAGRAM

CALLOUTS NEXT TO WIRING PLUGS INDICATE
CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

LUMINANCE SIGNAL PROCESS SECTION
VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

DEMODULATOR SECTION
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL
IN STOP MODE.

SPECIAL
ALL INTE
ELECTRO
HANDLIN
(ES) DEV

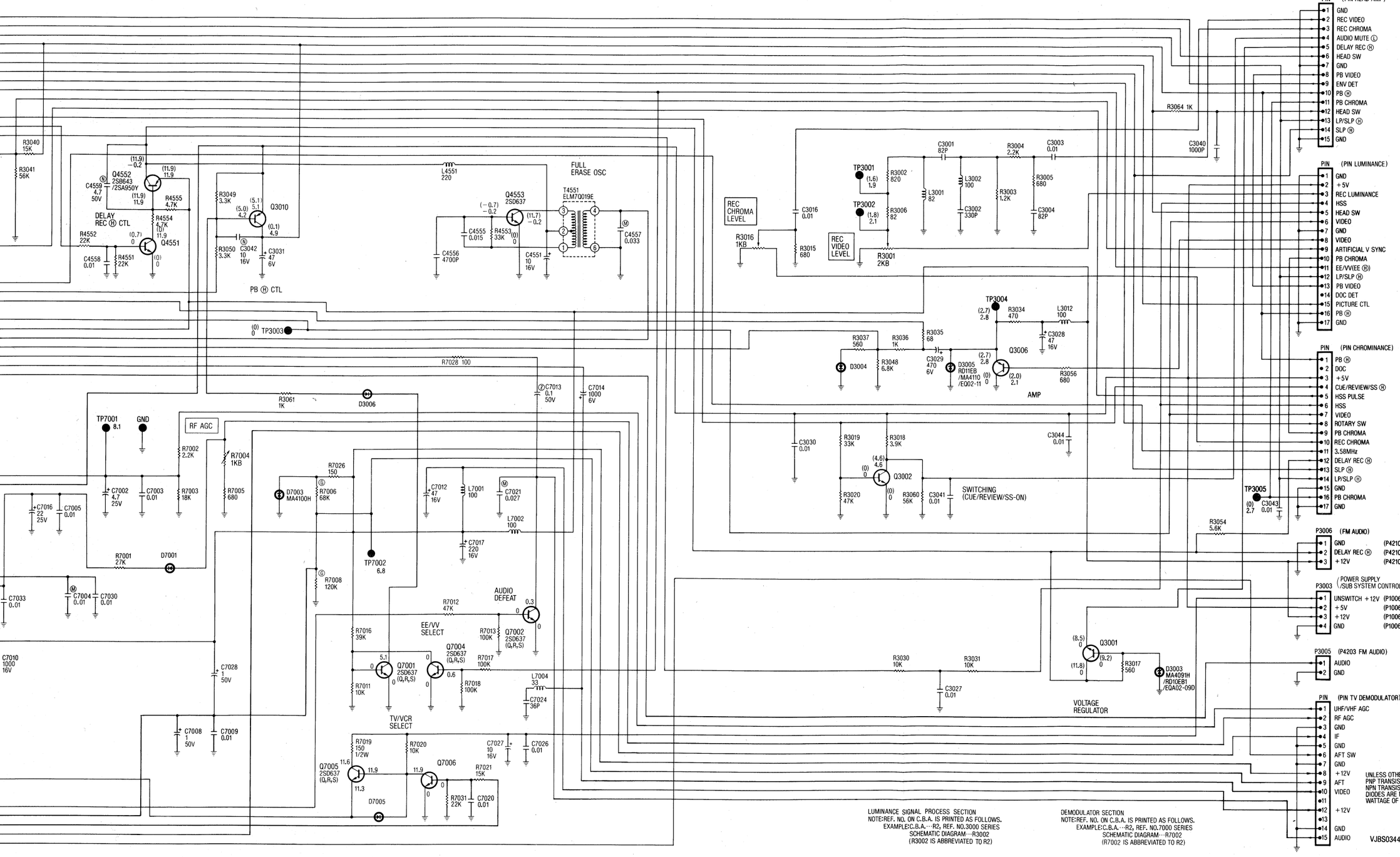


LUMINANCE SIGNAL PROCESS SECTION
VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

DEMODULATOR SECTION
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN STOP MODE.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.






| LUMINANCE SIGNAL PROCESS SECTION | |
|---|---|
| Q3001 | 9-B |
| Q3002 | 8-C |
| Q3006 | 9-C |
| Q3007 | 3-D |
| Q3008 | 3-D |
| Q3000 | 5-D |
| Q4551 | 4-D |
| Q4552 | 4-D |
| Q4553 | 6-D |

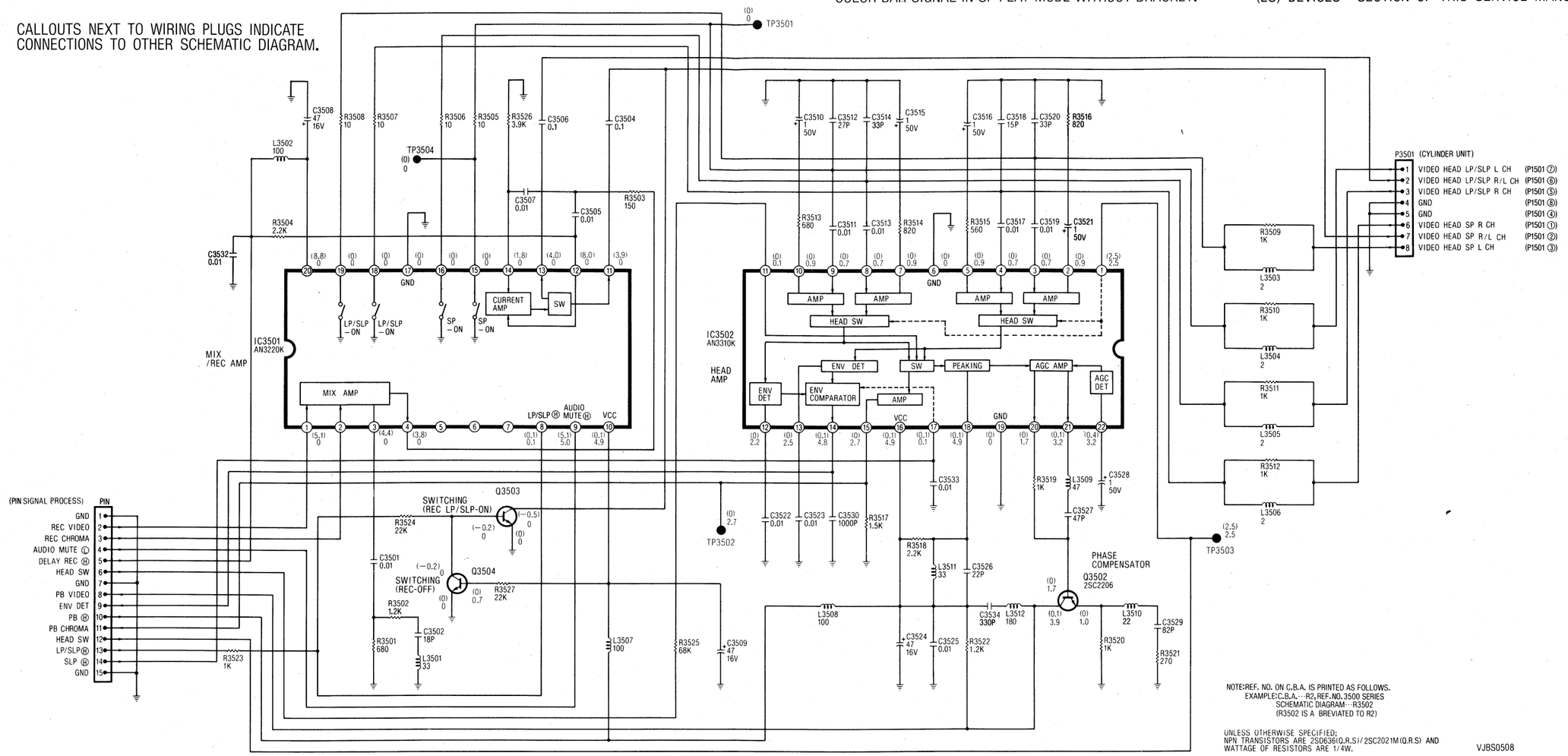
| DEMODULATOR SECTION | |
|---|---|
| Q7001 | 5-B |
| Q7002 | 6-B |
| Q7004 | 6-B |
| Q7005 | 5-A |
| Q7006 | 6-A |

# HEAD AMP SCHEMATIC DIAGRAM

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

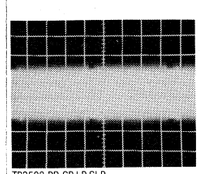
SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

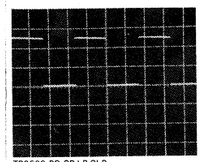


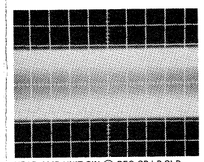

NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A. - R2, REF. NO. 3500 SERIES
SCHEMATIC DIAGRAM - R3502
(R3502 IS A BREVIATED TO R2)

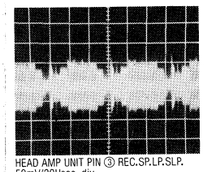
UNLESS OTHERWISE SPECIFIED:
NPN TRANSISTORS ARE 2SD636(Q,R,S)/2SC2021M(Q,R,S) AND
WATTAGE OF RESISTORS ARE 1/4W.

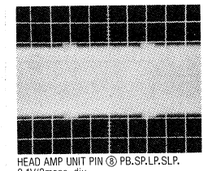
VJBS0508


TP3502 PB.SP.LP.SLP.
0.1V/2msec. div.


TP3503 PB.SP.LP.SLP.
2V/10msec. div.


HEAD AMP UNIT PIN ② REC.SP.LP.SLP.
20mV/10Usec. div.


HEAD AMP UNIT PIN ③ REC.SP.LP.SLP.
50mV/20Usec. div.

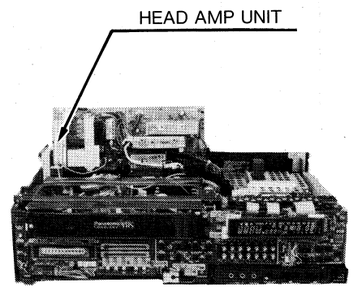

HEAD AMP UNIT PIN ⑧ PB.SP.LP.SLP.
0.1V/2msec. div.

| REF.NO. | IC3501 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 0 | 0 | 0 | 0 | ★ | ★ | ★ | 0.1 | 4.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REC | 4.9 | 4.9 | 4.2 | 3.4 | ★ | ★ | ★ | 0.1 | 4.7 | 0.1 | 0.5 | 7.7 | 3.8 | 1.7 | 0 | 0 | 0 | 0 | 0 | 8.5 |
| PLAY | 0 | 0 | 0 | 0 | ★ | ★ | ★ | 0.1 | 4.7 | 4.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CUE | 0 | 0 | 0 | 0 | ★ | ★ | ★ | 0.1 | 4.7 | 4.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REV | 0 | 0 | 0 | 0 | ★ | ★ | ★ | 0 | 4.7 | 4.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REF.NO. | IC3502 | | | | | | | | | | | | | | | | | | | |
| MODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 4.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0 |
| REC | 2.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0.1 | 0.1 | 0 | 0 |
| PLAY | 2.5 | 0.9 | 0.7 | 0.7 | 0.9 | 0 | 0.9 | 0.7 | 0.7 | 0.9 | 0 | 1.9 | 2.2 | 4.7 | 2.6 | 4.7 | 0.1 | 4.7 | 0 | 1.6 |
| CUE | 2.5 | 0.9 | 0.7 | 0.7 | 0.9 | 0 | 0.9 | 0.7 | 0.7 | 0.9 | 1.5 | 2.0 | 2.0 | 2.5 | 2.6 | 4.6 | 0.1 | 4.7 | 0 | 1.6 |
| REV | 2.5 | 0.9 | 0.7 | 0.2 | 0.9 | 0 | 0.9 | 0.7 | 0.7 | 0.9 | 1.5 | 2.0 | 2.0 | 2.5 | 2.6 | 4.7 | 0.1 | 4.7 | 0 | 1.6 |

| REF.NO. | IC3501 | | | TP3501 | TP3502 | TP3503 | TP3504 |
|---|---|---|---|---|---|---|---|
| MODE | 21 | 22 | | | | | |
| STOP | 0 | 0.3 | | 0 | 0 | 4.9 | 0 |
| REC | 0.1 | 0.3 | | 0 | 0 | 2.5 | 0 |
| PLAY | 3.1 | 3.0 | | 0 | 2.6 | 2.5 | 0 |
| CUE | 3.1 | 3.0 | | 0 | 2.6 | 2.5 | 0 |
| REV | 3.1 | 3.0 | | 0 | 2.6 | 2.5 | 0 |

| REF.NO. | Q3502 | | | Q3503 | | | Q3504 | | |
|---|---|---|---|---|---|---|---|---|---|
| MODE | E | B | C | E | B | C | E | B | C |
| STOP | 0 | 0 | 0 | 0 | −0.1 | 0 | 0 | 0 | −0.1 |
| REC | 0 | 0 | 0 | 0 | −0.1 | 0 | 0 | 0 | −0.1 |
| PLAY | 0.9 | 1.6 | 3.8 | 0 | 0 | 0 | 0 | 0.7 | 0 |
| CUE | 0.9 | 1.6 | 3.8 | 0 | 0 | 0 | 0 | 0.7 | 0 |
| REV | 0.9 | 1.6 | 3.8 | 0 | 0 | 0 | 0 | 0.7 | 0 |

VOLTAGE MEASUREMENT:
1. CUE, REVIEW.
COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
COLOR BAR SIGNAL IN SP MODE.
★ : UNMEASURA BLE OR UNNECESSARY TO MEASURE.

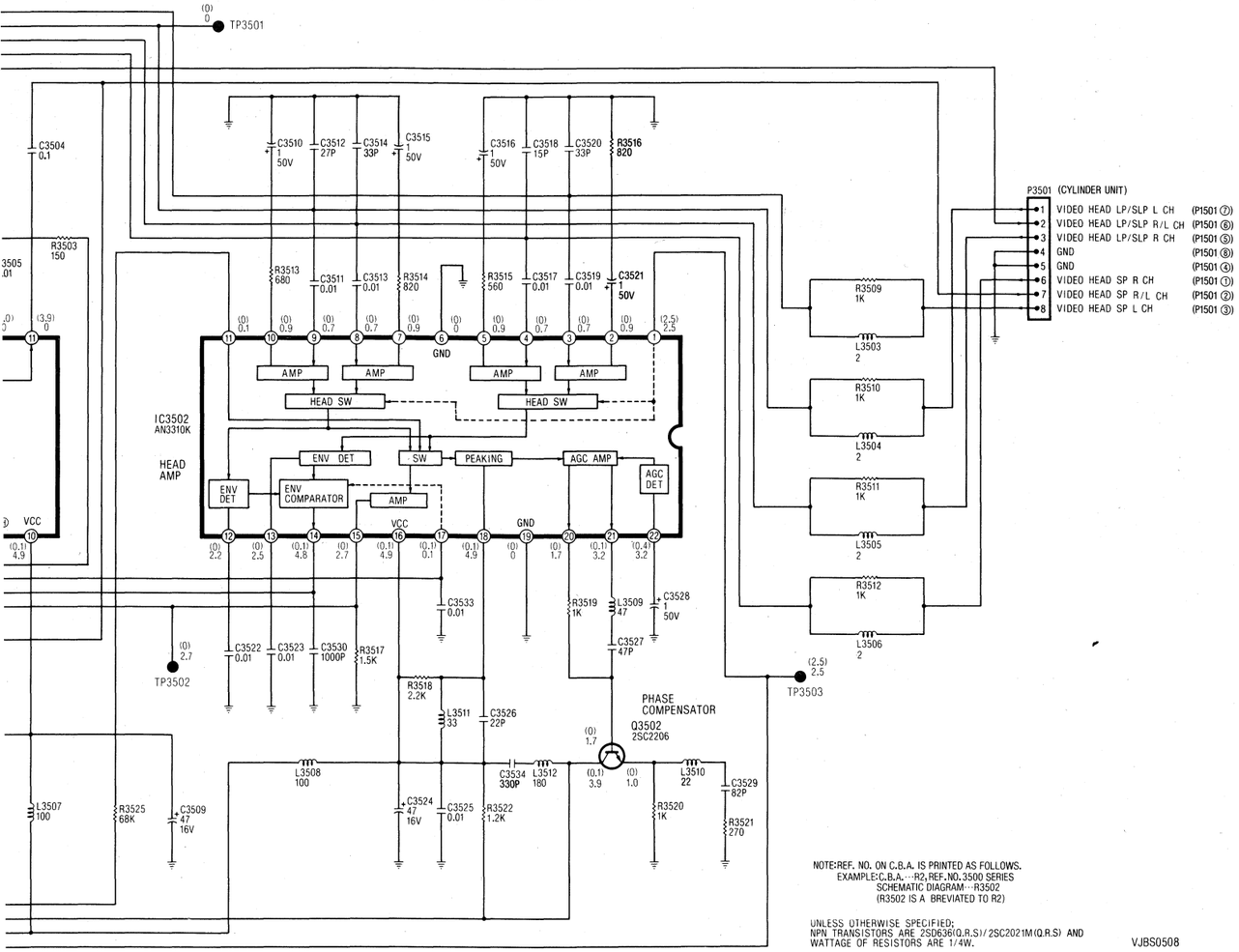



P3501

| | |
|---|---|
| 1 | VIDEO HI |
| 2 | VIDEO HI |
| 3 | VIDEO HI |
| 4 | GND |
| 5 | GND |
| 6 | VIDEO HI |
| 7 | VIDEO HI |
| 8 | VIDEO HI |

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.




NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF.NO.3500 SERIES
SCHEMATIC DIAGRAM···R3502
(R3502 IS A BREVIATED TO R2)

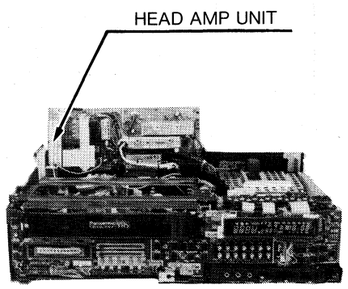
UNLESS OTHERWISE SPECIFIED;
NPN TRANSISTORS ARE 2SD636(Q.R.S)/2SC2021M(Q.R.S) AND
WATTAGE OF RESISTORS ARE 1/4W. VJBS0508

| | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 8.5 |
| | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 |

| | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|
| | 0 | 0.1 | 0 | 0 | 0 |
| | 0 | 0.1 | 0.1 | 0 | 0 |
| 7 | 0 | 0.1 | 4.7 | 0 | 1.6 |
| 6 | 0 | 0.1 | 4.7 | 0 | 1.6 |
| 7 | 0 | 0.1 | 4.7 | 0 | 1.6 |

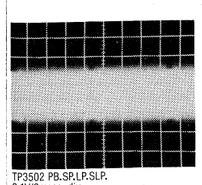
| REF.NO. / MODE | Q3502 E | Q3502 B | Q3502 C | Q3503 E | Q3503 B | Q3503 C | Q3504 E | Q3504 B | Q3504 C |
|---|---|---|---|---|---|---|---|---|---|
| STOP | 0 | 0 | 0 | 0 | −0.1 | 0 | 0 | 0 | −0.1 |
| REC | 0 | 0 | 0 | 0 | −0.1 | 0 | 0 | 0 | −0.1 |
| PLAY | 0.9 | 1.6 | 3.8 | 0 | 0 | 0 | 0 | 0.7 | 0 |
| CUE | 0.9 | 1.6 | 3.8 | 0 | 0 | 0 | 0 | 0.7 | 0 |
| REV | 0.9 | 1.6 | 3.8 | 0 | 0 | 0 | 0 | 0.7 | 0 |

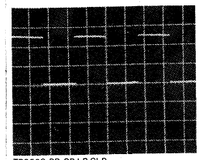
VOLTAGE MEASUREMENT:
1. CUE, REVIEW.
COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
COLOR BAR SIGNAL IN SP MODE.
★ : UNMEASURA BLE OR UNNECESSARY TO MEASURE.

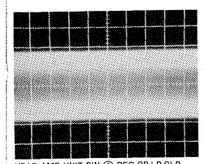


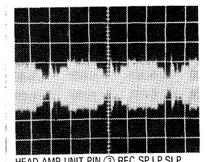

# HEAD AMP UNIT VEPS0508B1

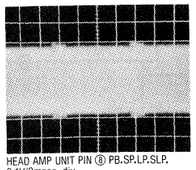
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN SP REC MODE.

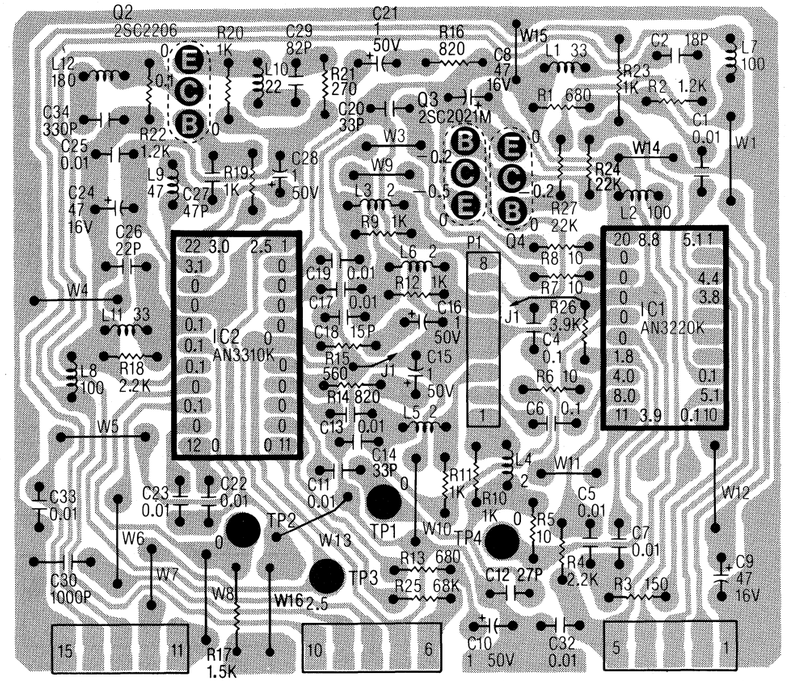

TP3502 PB.SP.LP.SLP.
0.1V/2msec. div.


TP3503 PB.SP.LP.SLP.
2V/10msec. div.


HEAD AMP UNIT PIN ② REC.SP.LP.SLP.
20mV/10Usec. div.


HEAD AMP UNIT PIN ③ REC.SP.LP.SLP.
50mV/20Usec. div.


HEAD AMP UNIT PIN ⑧ PB.SP.LP.SLP.
0.1V/2msec. div.




UNLESS OTHERWISE SPECIFIED;
NPN TRANSISTORS ARE 2SD636(Q.R.S) AND
WATTAGE OF RESISTORS ARE 1/4W.
VJBS0508②

B
A
1
2

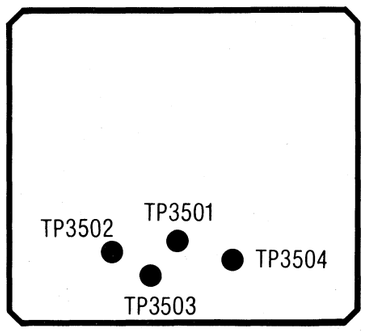
LOCATION OF TEST POINTS

P3501

| | |
|---|---|
| 1 | VIDEO HEAD LP/SLP L CH |
| 2 | VIDEO HEAD LP/SLP R/L CH |
| 3 | VIDEO HEAD LP/SLP R CH |
| 4 | GND |
| 5 | GND |
| 6 | VIDEO HEAD SP R CH |
| 7 | VIDEO HEAD SP R/L CH |
| 8 | VIDEO HEAD SP L CH |

PIN

| | |
|---|---|
| 1 | GND |
| 2 | REC VIDEO |
| 3 | REC CHROMA |
| 4 | AUDIO MUTE Ⓛ |
| 5 | DELAY REC Ⓗ |
| 6 | HEAD SW |
| 7 | GND |
| 8 | PB VIDEO |
| 9 | ENV DET |
| 10 | PB Ⓗ |
| 11 | PB CHROMA |
| 12 | HEAD SW |
| 13 | LP/SLP Ⓗ |
| 14 | SLP Ⓗ |
| 15 | GND |

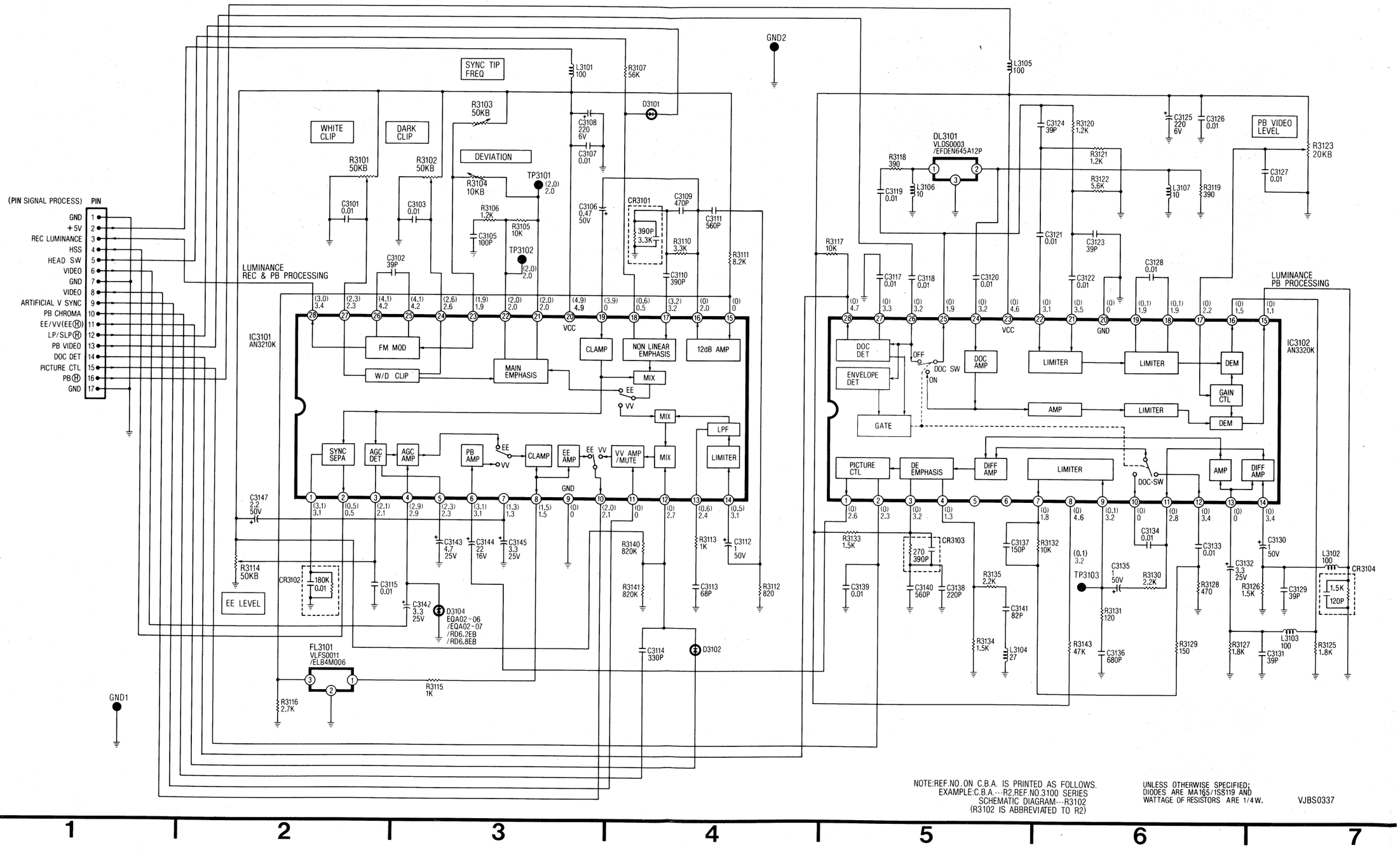


# LUMINANCE SCHEMATIC DIAGRAM

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.




NOTE:REF.NO.ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2,REF.NO.3100 SERIES
SCHEMATIC DIAGRAM···R3102
(R3102 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED:
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

VJBS0337

IC3101 ② REC/PB.SP.LP.SLP. 2V/20Usec. div.

IC3101 ④ STOP. 0.2V/20Usec. div.

IC3101 ⑮ REC/PB.SP.LP.SLP. 0.5V/20Usec. div.

IC3101 ⑯ PB.SP.LP.SLP. 0.2V/20Usec. div.

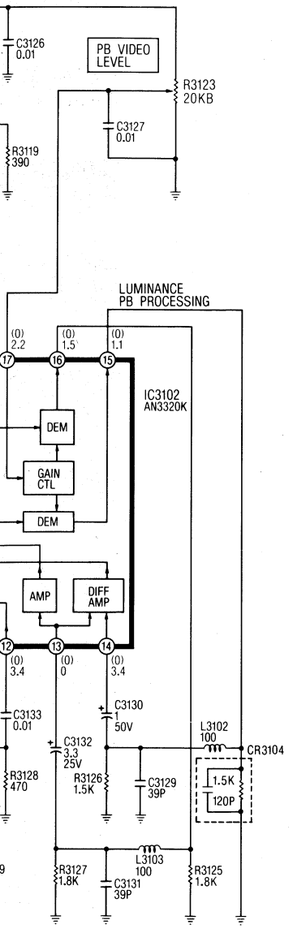
IC3101 ⑱ REC.SP.LP.SLP. 0.5V/5msec. div.

IC3102 ⑥ PB.SP.LP.SLP. 0.5V/5msec. div.

TP3101 REC.SP. 0.2V/20Usec. div.

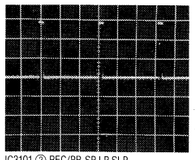
TP3102 REC.SP.LP.SLP. 0.1V/20Usec. div.

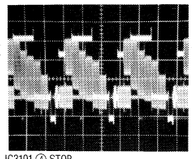
MICONDUCTOR DEVICES ARE
REQUIRE THE SPECIAL
ELECTROSTATICALLY SENSITIVE
AL.

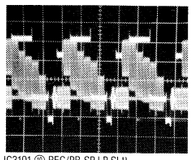


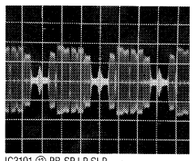

WISE SPECIFIED;
A165/1SS119 AND
SISTORS ARE 1/4W.

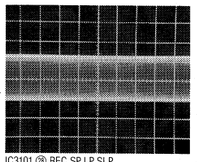
VJBS0337

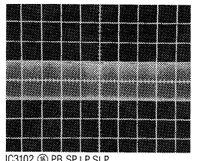

IC3101 ② REC/PB.SP.LP.SLP.
2V/20Usec. div.

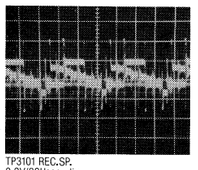

IC3101 ④ STOP.
0.2V/20Usec. div.

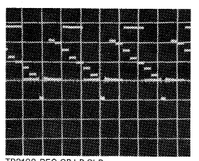

IC3101 ⑧ REC/PB.SP.LP.SLP.
0.5V/20Usec. div.

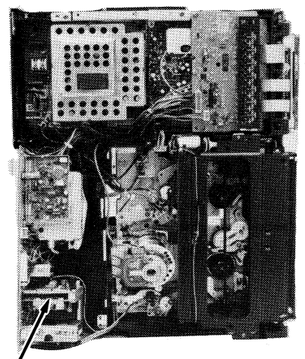

IC3101 ⑰ PB.SP.LP.SLP.
0.2V/20Usec. div.


IC3101 ㉘ REC.SP.LP.SLP.
0.5V/20Usec. div.


IC3102 ⑯ PB.SP.LP.SLP.
0.5V/5msec. div.


TP3101 REC.SP.
0.2V/20Usec. div.


TP3102 REC.SP.LP.SLP.
0.1V/20Usec. div.


LUMINANCE C.B.A.

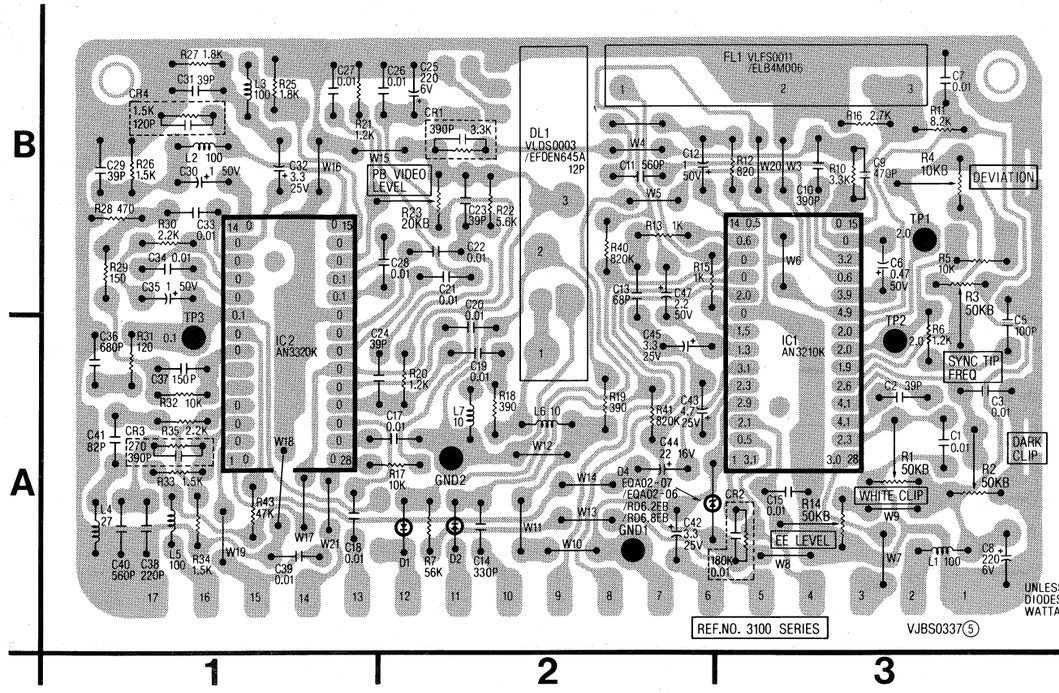


# LUMINANCE C.B.A. VEPS0337A



CAUTION:DO NOT BEND OR SPREAD APART THE LUMINANCE AND CHROMINANCE PACKS. BY DOING SO DAMAGE TO THE MAIN C.B.A. OR PINS ON THE PACKS MAY RESULT.

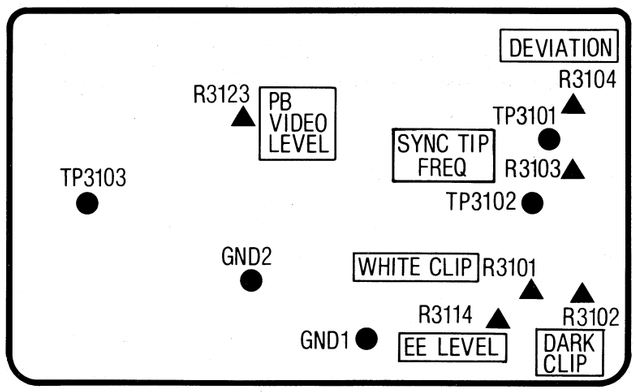
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN SP REC MODE.




| PIN | |
|---|---|
| 1 | GND |
| 2 | +5V |
| 3 | REC LUMINANCE |
| 4 | HSS |
| 5 | HEAD SW |
| 6 | VIDEO |
| 7 | GND |
| 8 | VIDEO |
| 9 | ARTIFICIAL V SYNC |
| 10 | PB CHROMA |
| 11 | EE/VV (EE Ⓗ) |
| 12 | LP/SLP Ⓗ |
| 13 | PB VIDEO |
| 14 | DOC DET |
| 15 | PICTURE CTL |
| 16 | PB Ⓗ |
| 17 | GND |

UNLESS OTHERWISE SPECIFIED;
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

## LOCATION OF TEST POINTS & ADJUSTMENT POINTS




VOLTAGE MEASUREMENT:
1. CUE, REVIEW.
   COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
   COLOR BAR SIGNAL IN SP MODE.

★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

| REF.NO. / MODE | IC3101 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 3.1 | 0.4 | 2.1 | 2.9 | 2.3 | 3.1 | 1.3 | 1.5 | 0 | 1.9 | 0 | 4.3 | 0.7 | 0.6 | 0 | 2.0 | 3.2 | 1.5 | 3.9 | 4.9 |
| REC | 3.1 | 0.5 | 2.1 | 2.9 | 2.3 | 3.1 | 1.3 | 1.5 | 0 | 2.0 | 0 | 0 | 0.6 | 0.5 | 0 | 0 | 3.2 | 0.6 | 3.9 | 4.9 |
| PLAY | 3.1 | 0.5 | 2.1 | 2.9 | 2.3 | 3.1 | 1.3 | 1.5 | 0 | 2.1 | 0 | 2.7 | 2.4 | 3.1 | 0 | 2.0 | 3.2 | 0.5 | 0 | 0 |
| CUE | 3.1 | 0.3 | 2.1 | 2.9 | 2.3 | 3.1 | 1.3 | 1.5 | 0 | 2.1 | 0.1 | 2.6 | 2.5 | 3.1 | 1.3 | 2.0 | 3.1 | 2.0 | 3.9 | 4.9 |
| REV | 3.1 | 0.4 | 2.1 | 2.9 | 2.3 | 3.1 | 1.3 | 1.5 | 0 | 2.0 | 0.1 | 2.6 | 2.5 | 3.1 | 1.3 | 2.0 | 3.2 | 2.1 | 3.9 | 4.9 |

| REF.NO. / MODE | IC3101 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | | | | | | | | | | | | |
| STOP | 2.0 | 2.0 | 1.9 | 2.6 | 4.1 | 4.1 | 2.3 | 3.0 | | | | | | | | | | | | |
| REC | 2.0 | 2.0 | 1.9 | 2.6 | 4.1 | 4.1 | 2.3 | 3.0 | | | | | | | | | | | | |
| PLAY | 2.0 | 2.0 | 1.9 | 2.6 | 4.2 | 4.2 | 2.3 | 3.4 | | | | | | | | | | | | |
| CUE | 2.0 | 2.0 | 2.0 | 2.6 | 4.2 | 4.2 | 2.3 | 3.4 | | | | | | | | | | | | |
| REV | 2.0 | 2.0 | 1.9 | 2.5 | 4.2 | 4.2 | 2.3 | 3.4 | | | | | | | | | | | | |

| REF.NO. / MODE | IC3102 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 0 | 0 | 0 | 0 | ★ | ★ | 0 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REC | 0 | 0 | 0 | 0 | ★ | ★ | 0 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0.1 | 0 |
| PLAY | 2.6 | 2.3 | 3.2 | 1.3 | ★ | ★ | 1.8 | 4.6 | 3.2 | 0 | 2.8 | 3.4 | 0 | 3.4 | 1.1 | 1.5 | 2.2 | 1.9 | 1.9 | 0 |
| CUE | 2.6 | 2.4 | 3.3 | 1.4 | ★ | ★ | 1.9 | 4.6 | 3.2 | 3.5 | 2.8 | 3.5 | 3.4 | 3.4 | 1.0 | 1.5 | 2.2 | 1.9 | 1.9 | 0 |
| REV | 2.6 | 2.3 | 3.3 | 1.4 | ★ | ★ | 1.8 | 4.6 | 3.2 | 3.4 | 2.8 | 3.5 | 3.5 | 3.4 | 1.1 | 1.5 | 2.2 | 1.9 | 1.9 | 0 |

| REF.NO. / MODE | IC3102 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | | | | | | | | | | | | |
| STOP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | |
| REC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | |
| PLAY | 3.5 | 3.1 | 4.6 | 3.2 | 1.9 | 3.2 | 3.3 | 4.7 | | | | | | | | | | | | |
| CUE | 3.5 | 3.2 | 4.6 | 3.2 | 1.9 | 3.2 | 3.1 | 0 | | | | | | | | | | | | |
| REV | 3.5 | 3.1 | 4.6 | 3.2 | 1.8 | 3.2 | 3.2 | 4.6 | | | | | | | | | | | | |

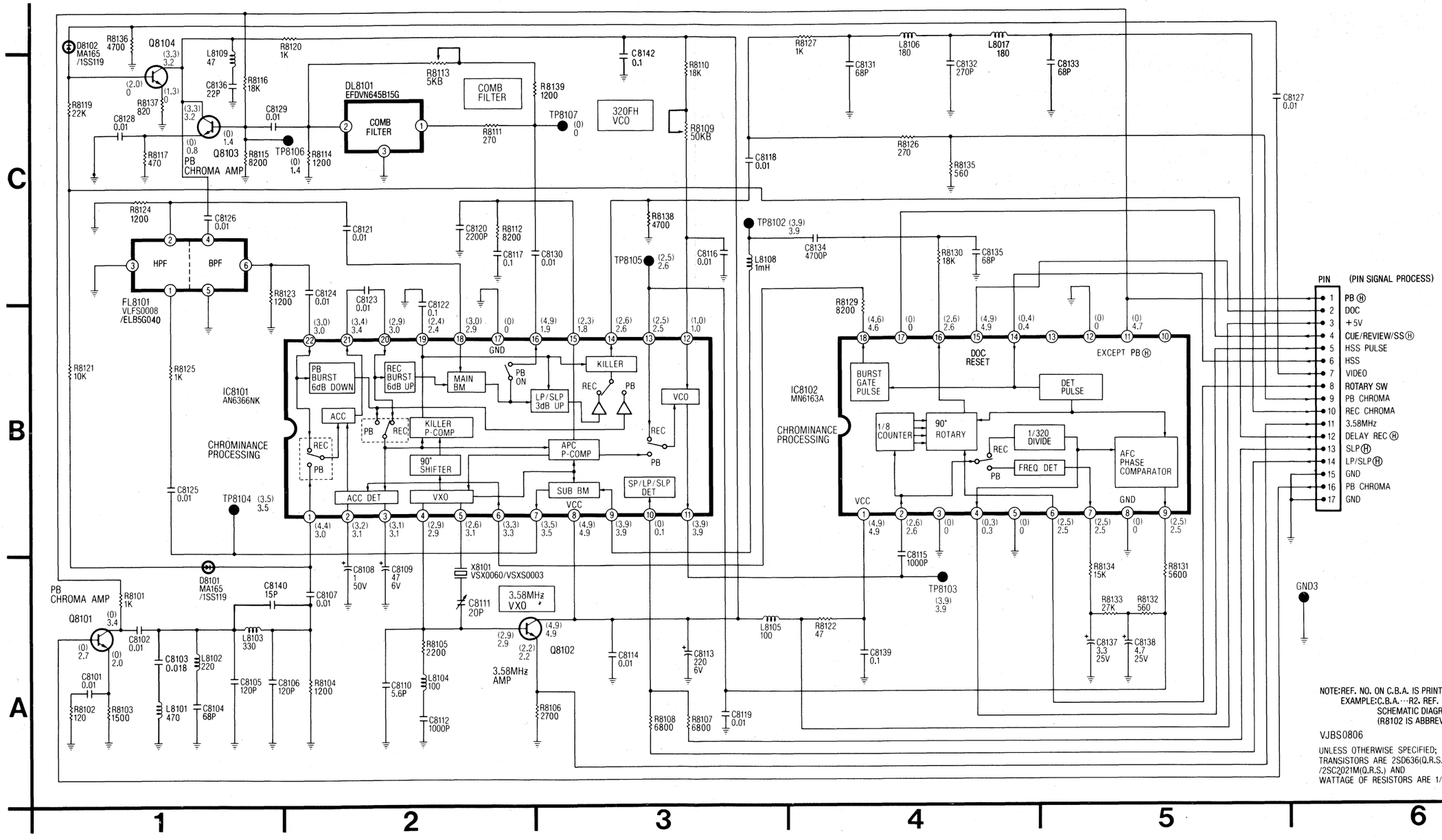
| REF.NO. / MODE | TP3101 | TP3102 | TP3103 |
|---|---|---|---|
| STOP | 2.0 | 2.0 | 0 |
| REC | 2.0 | 2.0 | 0.2 |
| PLAY | 2.0 | 2.0 | 3.2 |
| CUE | 2.0 | 2.0 | 3.2 |
| REV | 2.0 | 2.0 | 3.2 |

# CHROMINANCE SCHEMATIC DIAGRAM

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

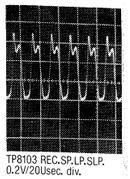
CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

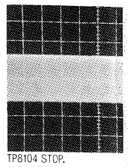


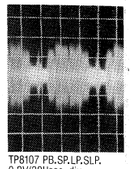

NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2. REF. NO.8100 SERIES SCHEMATIC DIAGRAM···R8102 (R8102 IS ABBREVIATED TO R2)

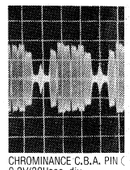
VJBS0806

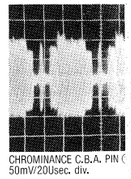
UNLESS OTHERWISE SPECIFIED;
TRANSISTORS ARE 2SD636(Q.R.S.) /2SC2021M(Q.R.S.) AND
WATTAGE OF RESISTORS ARE 1/4W.

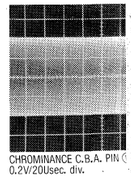

TP8103 REC.SP.LP.SLP. 0.2V/20Usec. div.

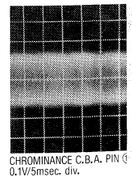

TP8104 STOP. 0.5V/20Usec. div.


TP8107 PB.SP.LP.SLP. 0.2V/20Usec. div.


CHROMINANCE C.B.A. PIN (
0.2V/20Usec. div.


CHROMINANCE C.B.A. PIN (
50mV/20Usec. div.


CHROMINANCE C.B.A. PIN (
0.2V/20Usec. div.


CHROMINANCE C.B.A. PIN (
0.1V/5msec. div.

THER SEMICONDUCTOR DEVICES ARE
REFORE REQUIRE THE SPECIAL
R THE "ELECTROSTATICALLY SENSITIVE
E MANUAL.

TS NEXT TO WIRING PLUGS INDICATE
TIONS TO OTHER SCHEMATIC DIAGRAM.

(PIN SIGNAL PROCESS)

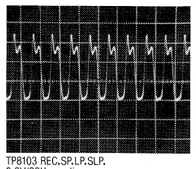
| | |
|---|---|
| 1 | PB Ⓗ |
| 2 | DOC |
| 3 | +5V |
| 4 | CUE/REVIEW/SS Ⓗ |
| 5 | HSS PULSE |
| 6 | HSS |
| 7 | VIDEO |
| 8 | ROTARY SW |
| 9 | PB CHROMA |
| 10 | REC CHROMA |
| 11 | 3.58MHz |
| 12 | DELAY REC Ⓗ |
| 13 | SLP Ⓗ |
| 14 | LP/SLP Ⓗ |
| 15 | GND |
| 16 | PB CHROMA |
| 17 | GND |

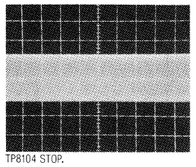
REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2. REF. NO.8100 SERIES
SCHEMATIC DIAGRAM···R8102
(R8102 IS ABBREVIATED TO R2)

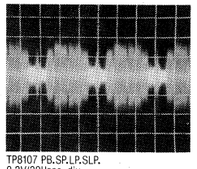
S0806

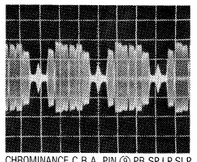
SS OTHERWISE SPECIFIED;
SISTORS ARE 2SD636(Q.R.S.)
2021M(Q.R.S.) AND
TAGE OF RESISTORS ARE 1/4W.

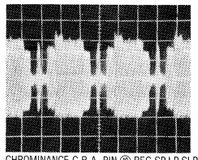


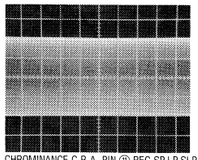

TP8103 REC.SP.LP.SLP.
0.2V/20Usec. div.

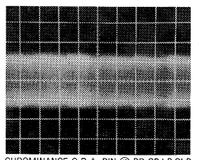

TP8104 STOP.
0.5V/20Usec. div.

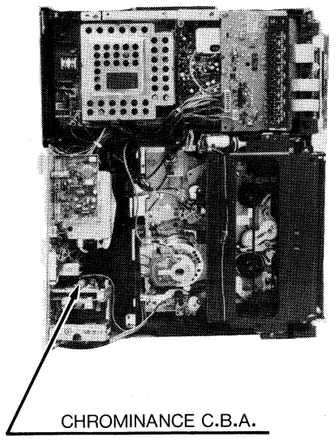

TP8107 PB.SP.LP.SLP.
0.2V/20Usec. div.


CHROMINANCE C.B.A. PIN ⑨ PB.SP.LP.SLP.
0.2V/20Usec. div.


CHROMINANCE C.B.A. PIN ⑩ REC.SP.LP.SLP.
50mV/20Usec. div.


CHROMINANCE C.B.A. PIN ⑪ REC.SP.LP.SLP.
0.2V/20Usec. div.

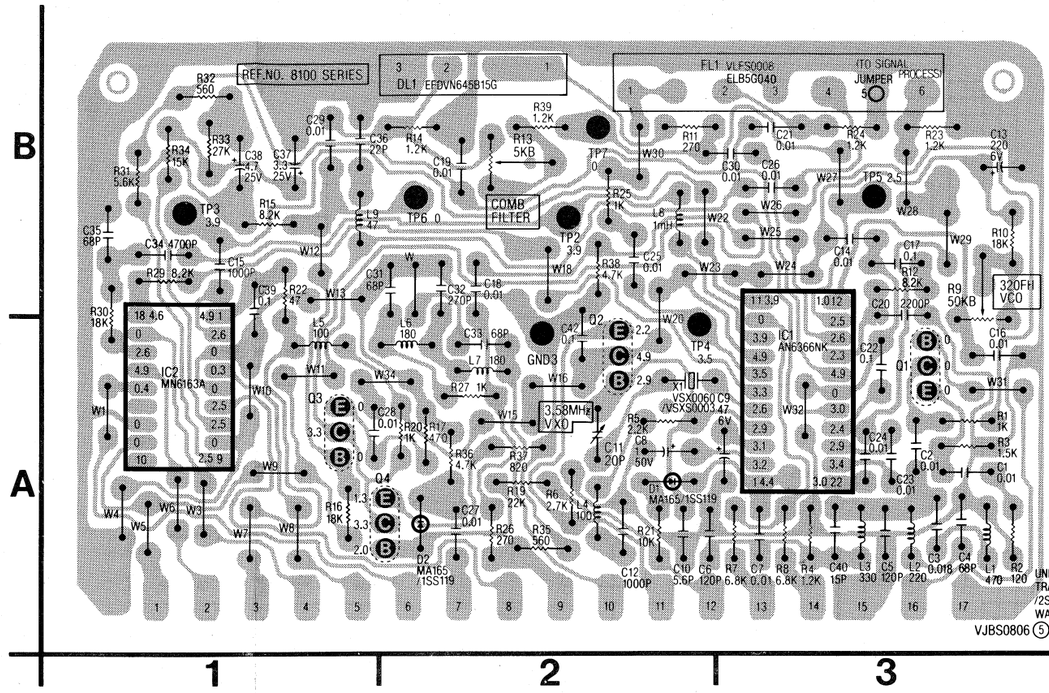

CHROMINANCE C.B.A. PIN ⑤ PB.SP.LP.SLP.
0.1V/5msec. div.




# CHROMINANCE C.B.A. VEPS0806A

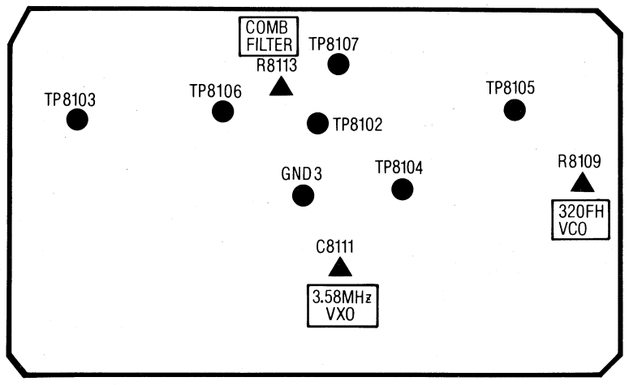
CAUTION:DO NOT BEND OR SPREAD APART THE LUMINANCE AND CHROMINANCE PACKS. BY DOING SO DAMAGE TO THE MAIN C.B.A. OR PINS ON THE PACKS MAY RESULT.

VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN SP REC MODE.




UNLESS OTHERWISE SPECIFIED;
TRANSISTORS ARE 2SD636(Q.R.S.)
/2SC2021M(Q.R.S.) AND
WATTAGE OF RESISTORS ARE 1/4W.

## LOCATION OF TEST POINTS & ADJUSTMENT POINTS




VOLTAGE MEASUREMENT:
1. CUE, REVIEW.
COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
COLOR BAR SIGNAL IN SP MODE.
★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

| REF.NO. / MODE | Q8101 | | | Q8102 | | | Q8103 | | | Q8104 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | | | | | | |
| STOP | 0 | 0 | 0.1 | 2.3 | 2.9 | 4.9 | 0 | 0 | 4.9 | 0 | 0 | 4.9 | | | | | | |
| REC | 0 | 0 | 0 | 2.2 | 2.9 | 4.9 | 0 | 0 | 3.3 | 1.3 | 2.0 | 3.3 | | | | | | |
| PLAY | 2.0 | 2.7 | 3.4 | 2.2 | 2.9 | 4.9 | 0.8 | 1.4 | 3.2 | 0 | 0 | 3.2 | | | | | | |
| CUE | 1.9 | 2.6 | 3.4 | 2.2 | 2.9 | 4.9 | 0.8 | 1.4 | 3.2 | 0 | 0 | 3.2 | | | | | | |
| REV | 2.0 | 2.7 | 3.4 | 2.2 | 2.9 | 4.8 | 0.7 | 1.4 | 3.2 | 0 | 0 | 3.2 | | | | | | |

| REF.NO. / MODE | IC8101 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 3.0 | 2.9 | 3.1 | 2.9 | 3.1 | 3.3 | 3.5 | 4.9 | 3.9 | 2.9 | 3.9 | 1.0 | 2.5 | 0 | 1.8 | 1.9 | 0 | 2.9 | 2.9 | 2.9 |
| REC | 4.4 | 3.2 | 3.1 | 2.9 | 2.6 | 3.3 | 3.5 | 4.9 | 3.9 | 0 | 3.9 | 1.0 | 2.5 | 2.6 | 2.3 | 4.9 | 0 | 3.0 | 2.4 | 2.9 |
| PLAY | 3.0 | 3.1 | 3.1 | 2.9 | 3.1 | 3.3 | 3.5 | 4.9 | 3.9 | 0.1 | 3.9 | 1.0 | 2.5 | 2.6 | 1.8 | 1.9 | 0 | 2.9 | 2.4 | 3.0 |
| CUE | 2.9 | 3.1 | 3.1 | 2.9 | 3.1 | 3.3 | 3.5 | 4.9 | 3.9 | 3.0 | 3.9 | 0.7 | 2.5 | 2.6 | 1.8 | 1.9 | 0 | 2.9 | 2.5 | 3.0 |
| REV | 2.9 | 3.1 | 3.1 | 2.9 | 3.1 | 3.3 | 3.5 | 4.9 | 3.9 | 2.9 | 3.9 | 0.9 | 2.5 | 2.6 | 1.8 | 1.9 | 0 | 2.9 | 2.5 | 3.0 |

| REF.NO. / MODE | IC8101 | | IC8102 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 21 | 22 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| STOP | 3.3 | 3.0 | 4.9 | 2.6 | 0 | 0.3 | 0 | 0 | 2.5 | 0 | 2.5 | ★ | 0 | 0 | ★ | 0.5 | 4.9 | 2.5 | 0 | 4.6 |
| REC | 3.4 | 3.0 | 4.9 | 2.6 | 0 | 0.3 | 0 | 2.5 | 2.5 | 0 | 2.5 | ★ | 0 | 0 | ★ | 0.4 | 4.9 | 2.6 | 0 | 4.6 |
| PLAY | 3.4 | 3.0 | 4.9 | 2.6 | 0 | 0.3 | 0 | 2.5 | 2.5 | 0 | 2.5 | ★ | 4.7 | 0 | ★ | 0.4 | 4.9 | 2.6 | 0.2 | 4.6 |
| CUE | 3.4 | 3.0 | 4.9 | 2.6 | 0 | 0.3 | 0 | 2.5 | 2.5 | 0 | 2.5 | ★ | 4.7 | 0 | ★ | 0.5 | 4.9 | 2.6 | 3.9 | 4.6 |
| REV | 3.4 | 3.0 | 4.9 | 2.6 | 0 | 0.3 | 0 | 2.5 | 2.5 | 0 | 2.5 | ★ | 4.7 | 0 | ★ | 0.4 | 4.9 | 2.5 | 3.9 | 4.6 |

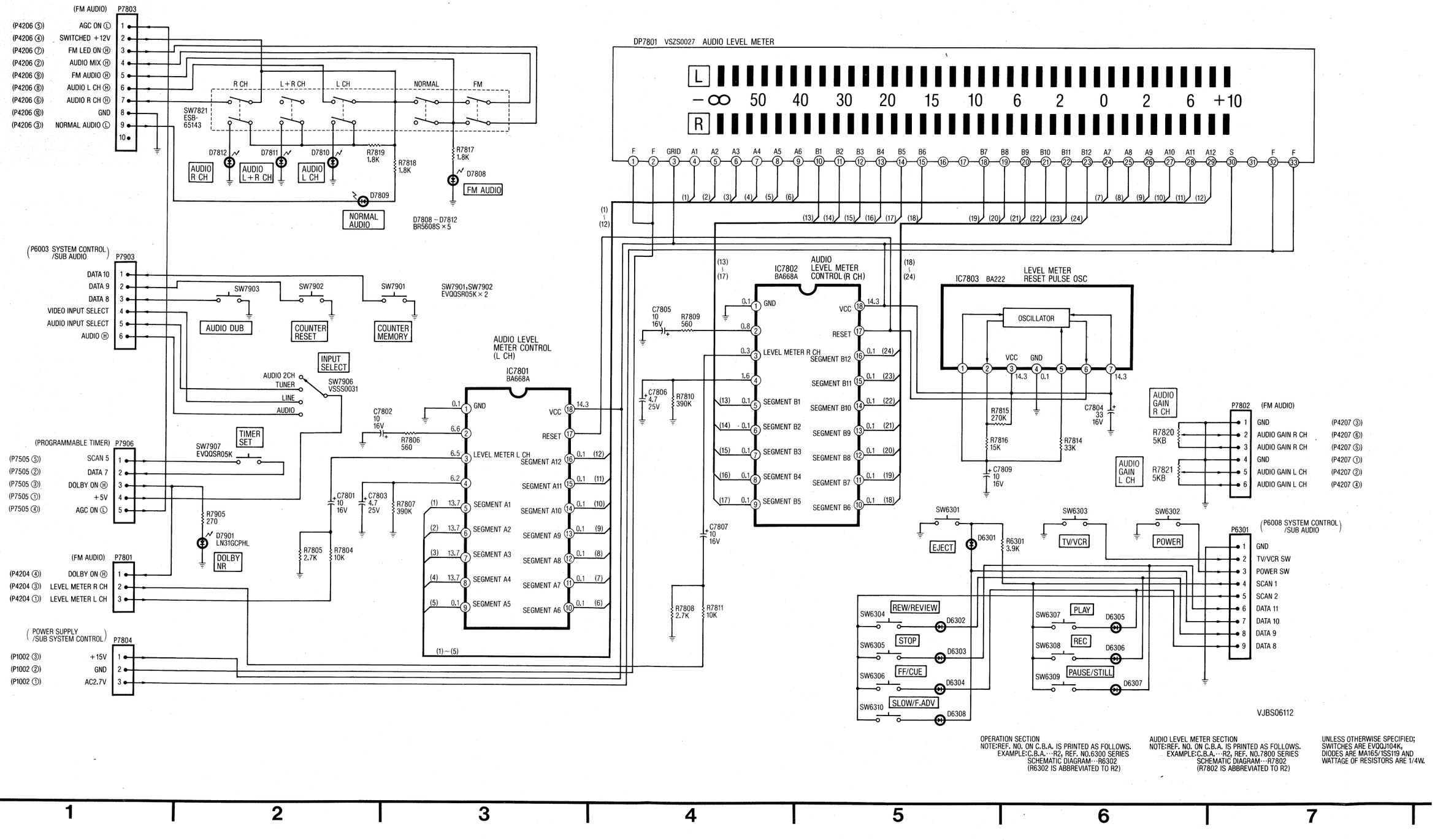
| REF.NO. / MODE | TP8102 | TP8103 | TP8104 | TP8105 | TP8106 | TP8107 |
|---|---|---|---|---|---|---|
| STOP | 4.0 | 4.0 | 3.5 | 2.6 | 0 | 0 |
| REC | 3.9 | 3.9 | 3.5 | 2.5 | 0 | 0 |
| PLAY | 3.9 | 3.9 | 0 | 2.6 | 0 | 0 |
| CUE | 3.9 | 3.9 | 3.4 | 2.5 | 0 | 0 |
| REV | 3.9 | 3.9 | 3.5 | 2.5 | 0 | 0 |

# OPERATION/AUDIO LEVEL METER SCHEMATIC DIAGRAM

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN STOP MODE.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



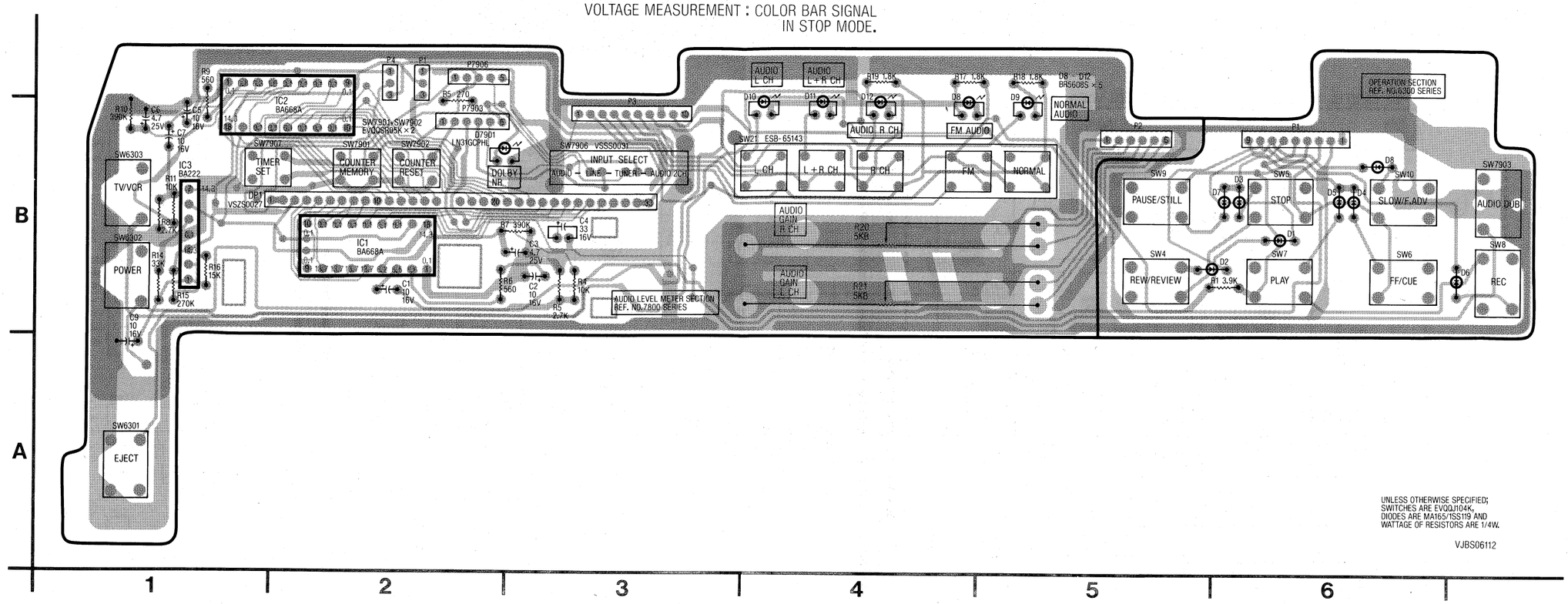

OPERATION SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.6300 SERIES SCHEMATIC DIAGRAM···R6302
(R6302 IS ABBREVIATED TO R2)

AUDIO LEVEL METER SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.7800 SERIES SCHEMATIC DIAGRAM···R7802
(R7802 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED;
SWITCHES ARE EVQQJ104K,
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

# OPERATION/AUDIO LEVEL METER C.B.A. VEPS06112A2

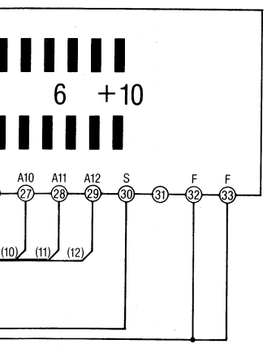
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL
IN STOP MODE.

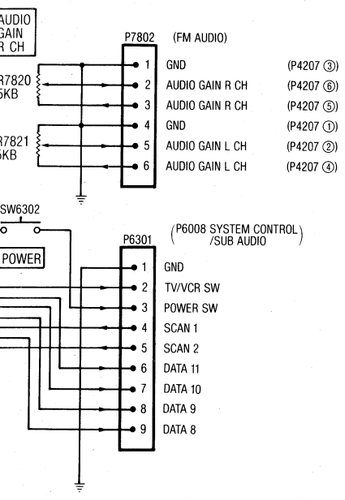



UNLESS OTHERWISE SPECIFIED;
SWITCHES ARE EVQQJ104K,
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

VJBS06112

O MANY OTHER SEMICONDUCTOR DEVICES ARE
AND THEREFORE REQUIRE THE SPECIAL
BED UNDER THE "ELECTROSTATICALLY SENSITIVE
IS SERVICE MANUAL.



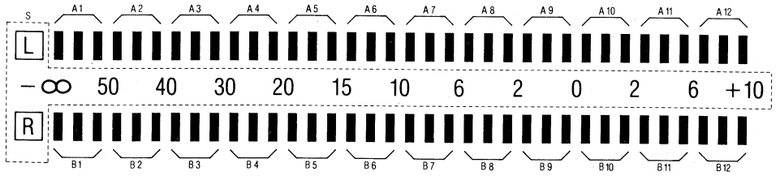

VJBS06112

UDIO LEVEL METER SECTION
OTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.7800 SERIES
SCHEMATIC DIAGRAM···R7802
(R7802 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED;
SWITCHES ARE EVQQJ104K,
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

7

## AUDIO LEVEL METER (DP7801) CONNECTION CHART




| PIN NO. | SIGNAL NAME |
|---|---|
| 1 | FILAMENT |
| 2 | FILAMENT |
| 3 | GRID |
| 4 | SEGMENT A1 |
| 5 | SEGMENT A2 |
| 6 | SEGMENT A3 |
| 7 | SEGMENT A4 |
| 8 | SEGMENT A5 |
| 9 | SEGMENT A6 |
| 10 | SEGMENT B1 |

| PIN NO. | SIGNAL NAME |
|---|---|
| 11 | SEGMENT B2 |
| 12 | SEGMENT B3 |
| 13 | SEGMENT B4 |
| 14 | SEGMENT B5 |
| 15 | SEGMENT B6 |
| 16 | ——— |
| 17 | ——— |
| 18 | SEGMENT B7 |
| 19 | SEGMENT B8 |
| 20 | SEGMENT B9 |

| PIN NO. | SIGNAL NAME |
|---|---|
| 21 | SEGMENT B10 |
| 22 | SEGMENT B11 |
| 23 | SEGMENT B12 |
| 24 | SEGMENT A7 |
| 25 | SEGMENT A8 |
| 26 | SEGMENT A9 |
| 27 | SEGMENT A10 |
| 28 | SEGMENT A11 |
| 29 | SEGMENT A12 |
| 30 | SEGMENT S |

| PIN NO. | SIGNAL NAME |
|---|---|
| 31 | ——— |
| 32 | FILAMENT |
| 33 | FILAMENT |

P6301

| | |
|---|---|
| 1 | GND |
| 2 | TV/VCR SW |
| 3 | POWER SW |
| 4 | SCAN 1 |
| 5 | SCAN 2 |
| 6 | DATA 11 |
| 7 | DATA 10 |
| 8 | DATA 9 |
| 9 | DATA 8 |

P7801

| | |
|---|---|
| 1 | DOLBY ON Ⓗ |
| 2 | LEVEL METER R CH |
| 3 | LEVEL METER L CH |

P7802

| | |
|---|---|
| 1 | GND |
| 2 | AUDIO GAIN R CH |
| 3 | AUDIO GAIN R CH |
| 4 | GND |
| 5 | AUDIO GAIN L CH |
| 6 | AUDIO GAIN L CH |

P7803

| | |
|---|---|
| 1 | AGC ON Ⓛ |
| 2 | SWITCHED +12V |
| 3 | FM LED ON Ⓗ |
| 4 | AUDIO MIX Ⓗ |
| 5 | FM AUDIO Ⓗ |
| 6 | AUDIO L CH Ⓗ |
| 7 | AUDIO R CH Ⓗ |
| 8 | GND |
| 9 | NORMAL AUDIO Ⓛ |

P7804

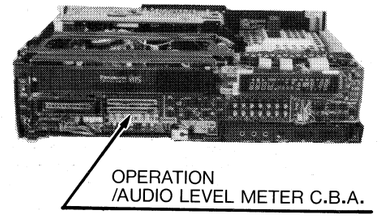
| | |
|---|---|
| 1 | +15V |
| 2 | GND |
| 3 | AC2.7V |

P7903

| | |
|---|---|
| 1 | DATA 10 |
| 2 | DATA 9 |
| 3 | DATA 8 |
| 4 | VIDEO INPUT SELECT |
| 5 | AUDIO INPUT SELECT |
| 6 | AUDIO Ⓗ |

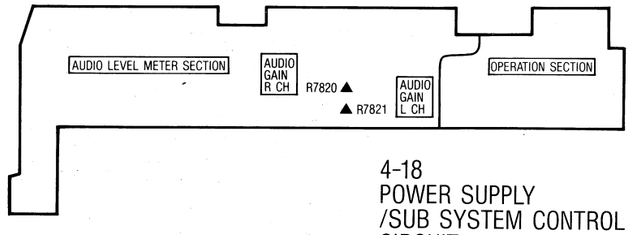
P7906

| | |
|---|---|
| 1 | SCAN 5 |
| 2 | DATA 7 |
| 3 | DOLBY ON Ⓗ |
| 4 | +5V |
| 5 | AGC ON Ⓛ |



OPERATION
/AUDIO LEVEL METER C.B.A.

## LOCATION OF ADJUSTMENT POINTS



# POWER SUPPLY/SUB SYSTEM CONTROL SCHEMATIC DIAGRAM

POWER SUPPLY SECTION
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN STOP MODE.

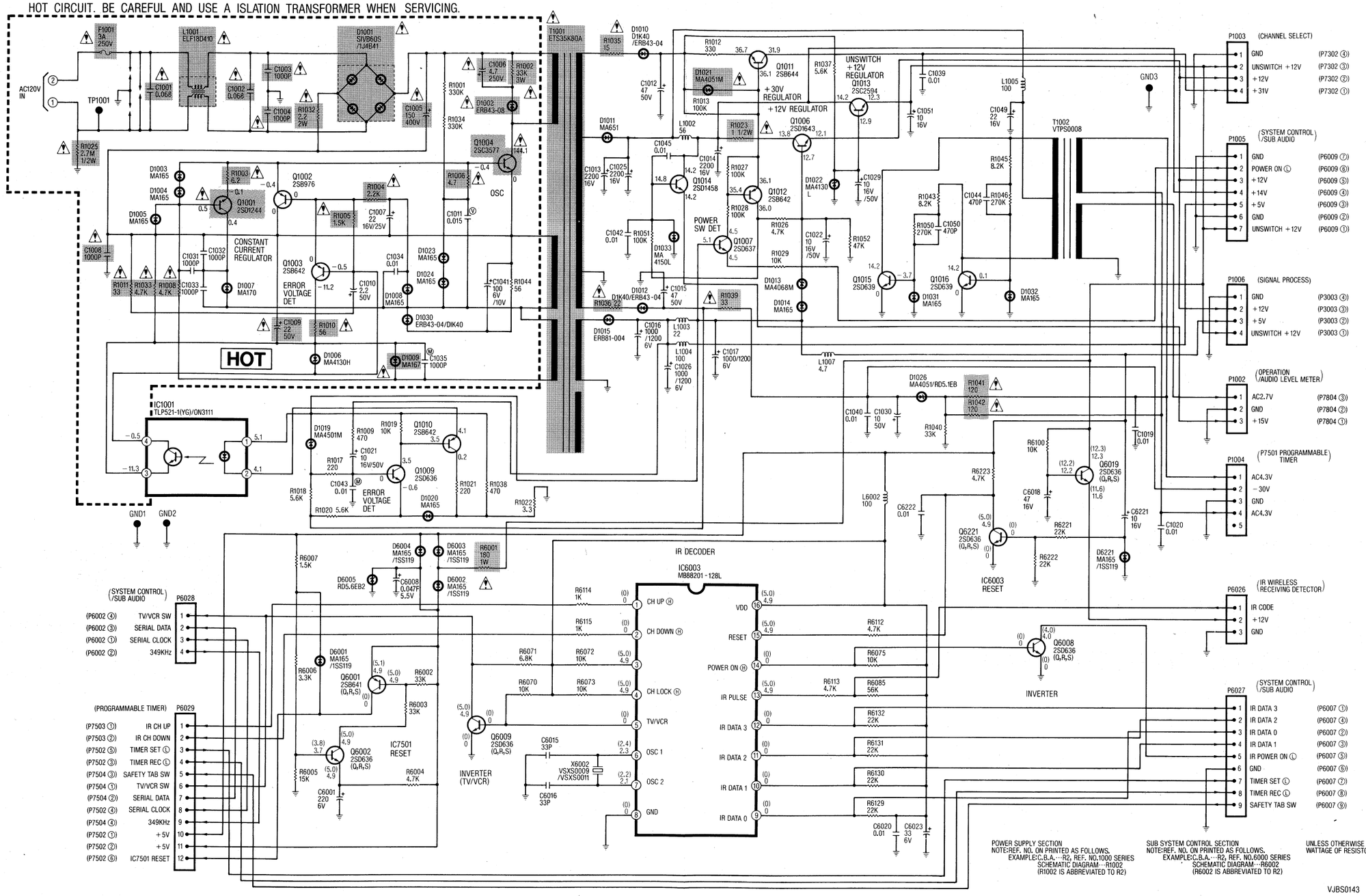
SUB SYSTEM CONTROL SECTION
VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

HOT CIRCUIT. BE CAREFUL AND USE A ISLATION TRANSFORMER WHEN SERVICING.




| POWER SUPPLY SECTION | |
|---|---|
| Q1001 | 2-D |
| Q1002 | 2-D |
| Q1003 | 2-D |
| Q1004 | 3-D |
| Q1006 | 5-D |
| Q1007 | 4-D |
| Q1009 | 3-C |
| Q1010 | 3-C |
| Q1011 | 4-E |
| Q1012 | 4-D |
| Q1013 | 5-E |
| Q1014 | 4-D |
| Q1015 | 5-D |
| Q1016 | 5-D |

| SUB SYSTEM CONTROL SECTION | |
|---|---|
| Q6001 | 3-B |
| Q6002 | 2-A |
| Q6008 | 6-B |
| Q6009 | 3-A |
| Q6019 | 6-C |
| Q6221 | 6-B |

POWER SUPPLY SECTION
NOTE:REF. NO. ON PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.1000 SERIES SCHEMATIC DIAGRAM···R1002
(R1002 IS ABBREVIATED TO R2)

SUB SYSTEM CONTROL SECTION
NOTE:REF. NO. ON PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.6000 SERIES SCHEMATIC DIAGRAM···R6002
(R6002 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS ARE 1/4W.

VJBS0143

POWER

IS A HOT CIRCUIT

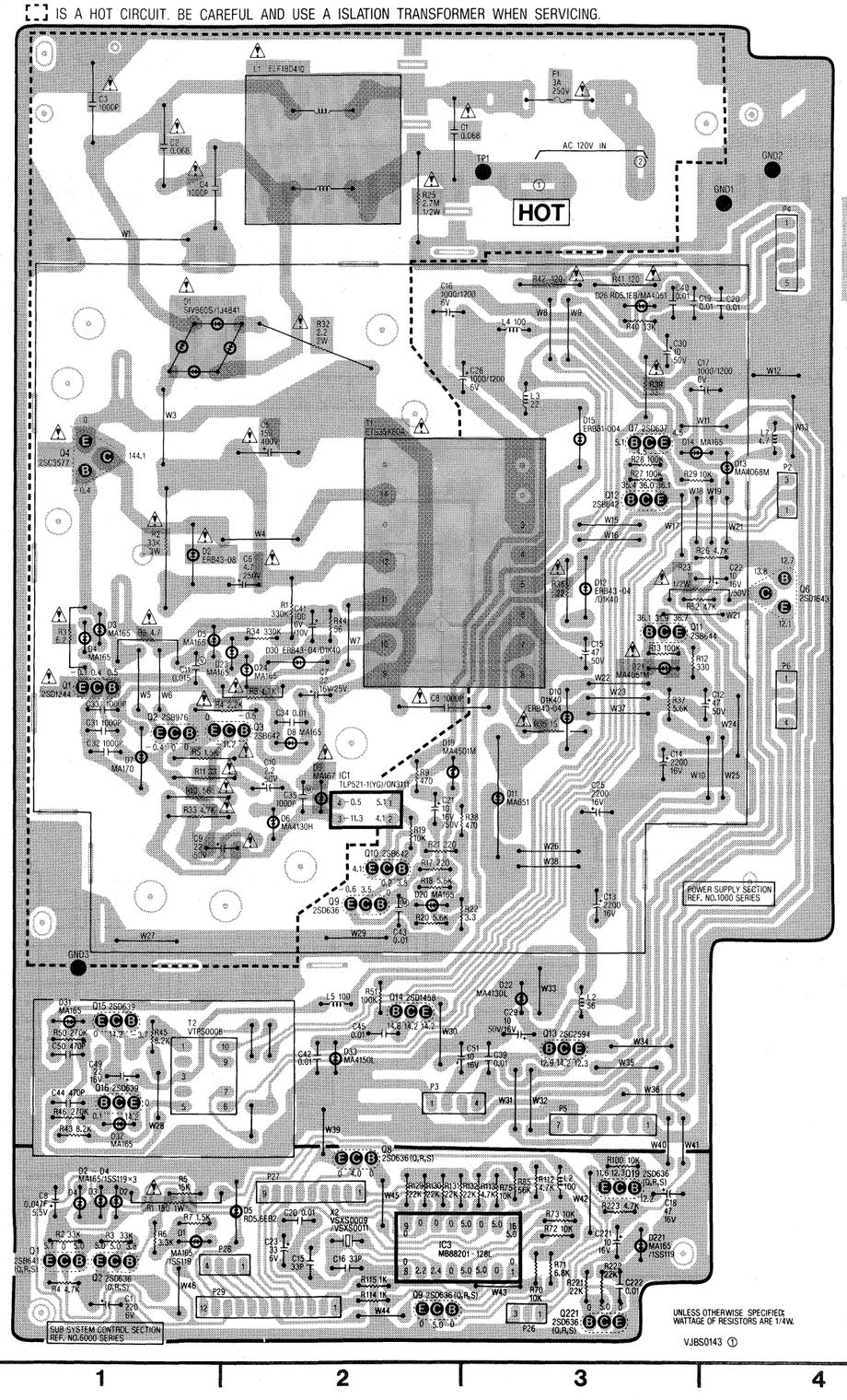
SUB-SYSTEM CONTROL SECTION
REF. NO.6000 SERIES

EMICONDUCTOR DEVICES ARE
REQUIRE THE SPECIAL
'ELECTROSTATICALLY SENSITIVE
JAL.

DICATE
DIAGRAM.

# POWER SUPPLY/SUB SYSTEM CONTROL C.B.A. VEPS0143A1

[ ] IS A HOT CIRCUIT. BE CAREFUL AND USE A ISLATION TRANSFORMER WHEN SERVICING.




POWER SUPPLY SECTION
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN STOP MODE.

SUB SYSTEM CONTROL SECTION
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN SP REC MODE.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

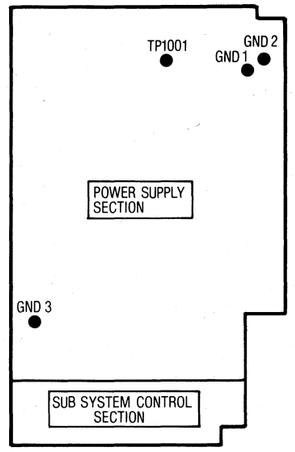
| POWER SUPPLY SECTION | |
|---|---|
| Q1001 | 2-D |
| Q1002 | 2-D |
| Q1003 | 2-D |
| Q1004 | 3-D |
| Q1006 | 5-D |
| Q1007 | 4-D |
| Q1009 | 3-C |
| Q1010 | 3-C |
| Q1011 | 4-E |
| Q1012 | 4-D |
| Q1013 | 5-E |
| Q1014 | 4-D |
| Q1015 | 5-D |
| Q1016 | 5-D |

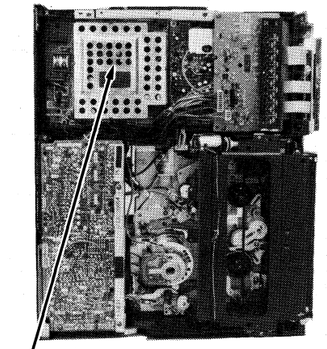
| SUB SYSTEM CONTROL SECTION | |
|---|---|
| Q6001 | 3-B |
| Q6002 | 2-A |
| Q6008 | 6-B |
| Q6009 | 3-A |
| Q6019 | 6-C |
| Q6221 | 6-B |

| POWER SUPPLY SECTION | |
|---|---|
| Q1 | 1-C |
| Q2 | 1-C |
| Q3 | 2-C |
| Q4 | 1-D |
| Q6 | 4-D |
| Q7 | 3-D |
| Q9 | 2-B |
| Q10 | 2-C |
| Q11 | 3-D |
| Q12 | 3-D |
| Q13 | 3-B |
| Q14 | 2-B |
| Q15 | 1-B |
| Q16 | 1-B |

| SUB SYSTEM CONTROL SECTION | |
|---|---|
| Q1 | 1-A |
| Q2 | 1-A |
| Q8 | 2-A |
| Q9 | 2-A |
| Q19 | 3-A |
| Q221 | 3-A |

## LOCATION OF TEST POINTS



POWER SUPPLY /SUB SYSTEM CONTROL C.B.A.

P1002

| | |
|---|---|
| 1 | AC2.7V |
| 2 | GND |
| 3 | +15V |

P1003

| | |
|---|---|
| 1 | GND |
| 2 | UNSWITCH +12V |
| 3 | +12V |
| 4 | +31V |

P1004

| | |
|---|---|
| 1 | AC4.3V |
| 2 | −30V |
| 3 | GND |
| 4 | AC4.3V |
| 5 | |

P1005

| | |
|---|---|
| 1 | GND |
| 2 | POWER ON Ⓛ |
| 3 | +12V |
| 4 | +14V |
| 5 | +5V |
| 6 | GND |
| 7 | UNSWITCH +12V |

P1006

| | |
|---|---|
| 1 | GND |
| 2 | +12V |
| 3 | +5V |
| 4 | UNSWITCH +12V |

P6026

| | |
|---|---|
| 1 | IR CODE |
| 2 | +12V |
| 3 | GND |

P6027

| | |
|---|---|
| 1 | IR DATA 3 |
| 2 | IR DATA 2 |
| 3 | IR DATA 0 |
| 4 | IR DATA 1 |
| 5 | IR POWER ON Ⓛ |
| 6 | GND |
| 7 | TIMER SET Ⓛ |
| 8 | TIMER REC Ⓛ |
| 9 | SAFETY TAB SW |

P6028

| | |
|---|---|
| 1 | TV/VCR SW |
| 2 | SERIAL DATA |
| 3 | SERIAL CLOCK |
| 4 | 349KHz |

P6029

| | |
|---|---|
| 1 | IR CH UP |
| 2 | IR CH DOWN |
| 3 | TIMER SET Ⓛ |
| 4 | TIMER REC Ⓛ |
| 5 | SAFETY TAB SW |
| 6 | TV/VCR SW |
| 7 | SERIAL DATA |
| 8 | SERIAL CLOCK |
| 9 | 349KHz |
| 10 | +5V |
| 11 | +5V |
| 12 | IC7501 RESET |

| REF.NO. / MODE | IC6003 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | | | | |
| STOP | 0 | 0 | 5.0 | 5.0 | 0 | 2.4 | 2.2 | 0 | 0 | 0 | 0 | 0 | 5.0 | 0 | 5.0 | 5.0 | | | | |
| FF | 0 | 0 | 5.0 | 5.0 | 0 | 2.4 | 2.2 | 0 | 0 | 0 | 0 | 0 | 5.0 | 0 | 5.0 | 5.0 | | | | |
| REW | 0 | 0 | 5.0 | 5.0 | 0 | 2.4 | 2.2 | 0 | 0 | 0 | 0 | 0 | 5.0 | 0 | 5.0 | 5.0 | | | | |
| REC | 0 | 0 | 5.0 | 5.0 | 0 | 2.4 | 2.2 | 0 | 0 | 0 | 0 | 0 | 5.0 | 0 | 5.0 | 5.0 | | | | |
| PLAY | 0 | 0 | 4.9 | 4.9 | 0 | 2.3 | 2.1 | 0 | 0 | 0 | 0 | 0 | 4.9 | 0 | 4.9 | 4.9 | | | | |
| CUE | 0 | 0 | 4.9 | 4.9 | 0 | 2.3 | 2.1 | 0 | 0 | 0 | 0 | 0 | 4.9 | 0 | 4.9 | 4.9 | | | | |
| REV | 0 | 0 | 4.9 | 4.9 | 0 | 2.3 | 2.1 | 0 | 0 | 0 | 0 | 0 | 4.9 | 0 | 4.9 | 4.9 | | | | |
| SLOW(1/4) | 0 | 0 | 4.9 | 4.9 | 0 | 2.3 | 2.1 | 0 | 0 | 0 | 0 | 0 | 4.9 | 0 | 4.9 | 4.9 | | | | |
| F.A | 0 | 0 | 4.9 | 4.9 | 0 | 2.3 | 2.1 | 0 | 0 | 0 | 0 | 0 | 4.9 | 0 | 4.9 | 4.9 | | | | |

| REF.NO. / MODE | Q6001 | | | Q6002 | | | Q6008 | | | Q6009 | | | Q6019 | | | Q6221 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C | E | B | C |
| STOP | 5.1 | 5.0 | 0 | 5.0 | 3.8 | 5.0 | 0 | 0 | 4.3 | 0 | 0 | 5.0 | 11.6 | 12.2 | 12.3 | 0 | 0 | 5.0 |
| FF | 5.1 | 5.0 | 0 | 5.0 | 3.8 | 5.0 | 0 | 0 | 4.0 | 0 | 0 | 5.0 | 11.6 | 12.2 | 12.3 | 0 | 0 | 5.0 |
| REW | 5.1 | 5.0 | 0 | 5.0 | 3.8 | 5.0 | 0 | 0 | 4.0 | 0 | 0 | 5.0 | 11.6 | 12.2 | 12.3 | 0 | 0 | 5.0 |
| REC | 5.1 | 5.0 | 0 | 5.0 | 3.8 | 5.0 | 0 | 0 | 4.0 | 0 | 0 | 5.0 | 11.6 | 12.2 | 12.3 | 0 | 0 | 5.0 |
| PLAY | 4.9 | 4.9 | 0 | 4.9 | 3.7 | 4.9 | 0 | 0 | 4.0 | 0 | 0 | 4.9 | 11.6 | 12.2 | 12.3 | 0 | 0 | 4.9 |
| CUE | 4.9 | 4.9 | 0 | 4.9 | 3.7 | 4.9 | 0 | 0 | 4.0 | 0 | 0 | 4.9 | 11.6 | 12.2 | 12.3 | 0 | 0 | 4.9 |
| REV | 4.9 | 4.9 | 0 | 4.9 | 3.7 | 4.9 | 0 | 0 | 4.0 | 0 | 0 | 4.9 | 11.6 | 12.2 | 12.3 | 0 | 0 | 4.9 |
| SLOW(1/4) | 4.9 | 4.9 | 0 | 4.9 | 3.7 | 4.9 | 0 | 0 | 4.0 | 0 | 0 | 4.9 | 11.6 | 12.2 | 12.3 | 0 | 0 | 4.9 |
| F.A | 4.9 | 4.9 | 0 | 4.9 | 3.7 | 4.9 | 0 | 0 | 4.0 | 0 | 0 | 4.9 | 11.6 | 12.2 | 12.3 | 0 | 0 | 4.9 |

VOLTAGE MEASUREMENT:
1. CUE, REVIEW, FRAME ADVANCE, SLOW.
   COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
   COLOR BAR SIGNAL IN SP MODE.

OTHERWISE SPECIFIED;
: OF RESISTORS ARE 1/4W.

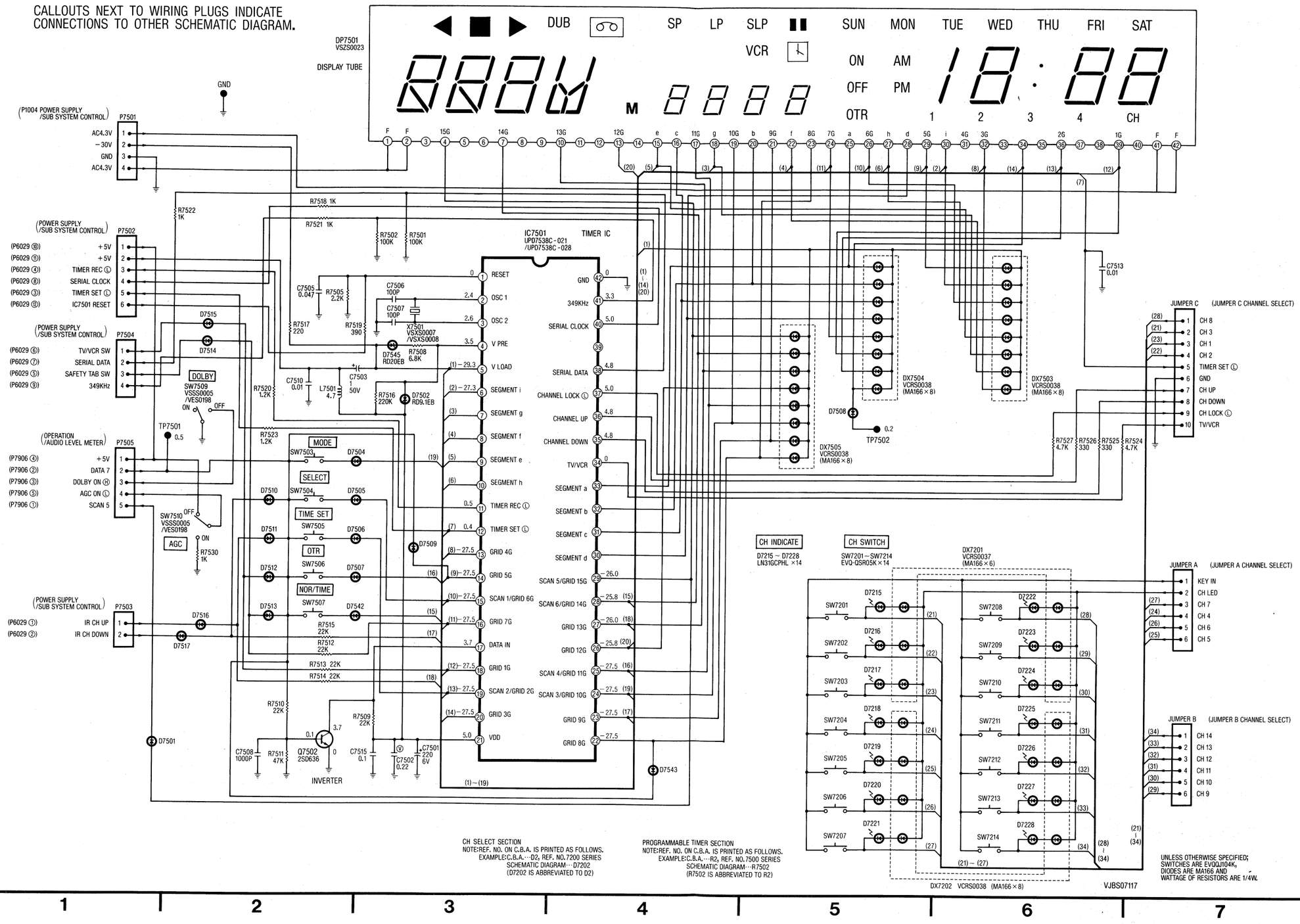
'JBS0143

# PROGRAMMABLE TIMER SCHEMATIC DIAGRAM

VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN STOP MODE.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

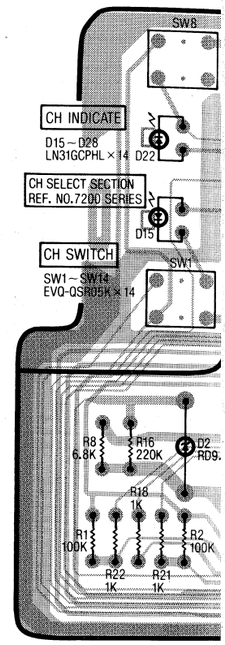



CH SELECT SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···D2, REF. NO.7200 SERIES
SCHEMATIC DIAGRAM···D7202
(D7202 IS ABBREVIATED TO D2)

PROGRAMMABLE TIMER SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.7500 SERIES
SCHEMATIC DIAGRAM···R7502
(R7502 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED;
SWITCHES ARE EVQQJ104K,
DIODES ARE MA166 AND
WATTAGE OF RESISTORS ARE 1/4W.

## PROGRAMI




## IC7501
## KEY MATRIX CHA

| SCAN OUT | DATA IN |
|---|---|
| PIN NO. | 17 (DATA IN) |
| 15 (SCAN 1) | SELECT |
| 19 (SCAN 2) | TIME SET |
| 24 (SCAN 3) | MODE |
| 25 (SCAN 4) | OTR |
| 29 (SCAN 5) | TIMER |
| 28 (SCAN 6) | RETURN |

TOR DEVICES ARE
HE SPECIAL
TATICALLY SENSITIVE

C CHANNEL SELECT)

CHANNEL SELECT)

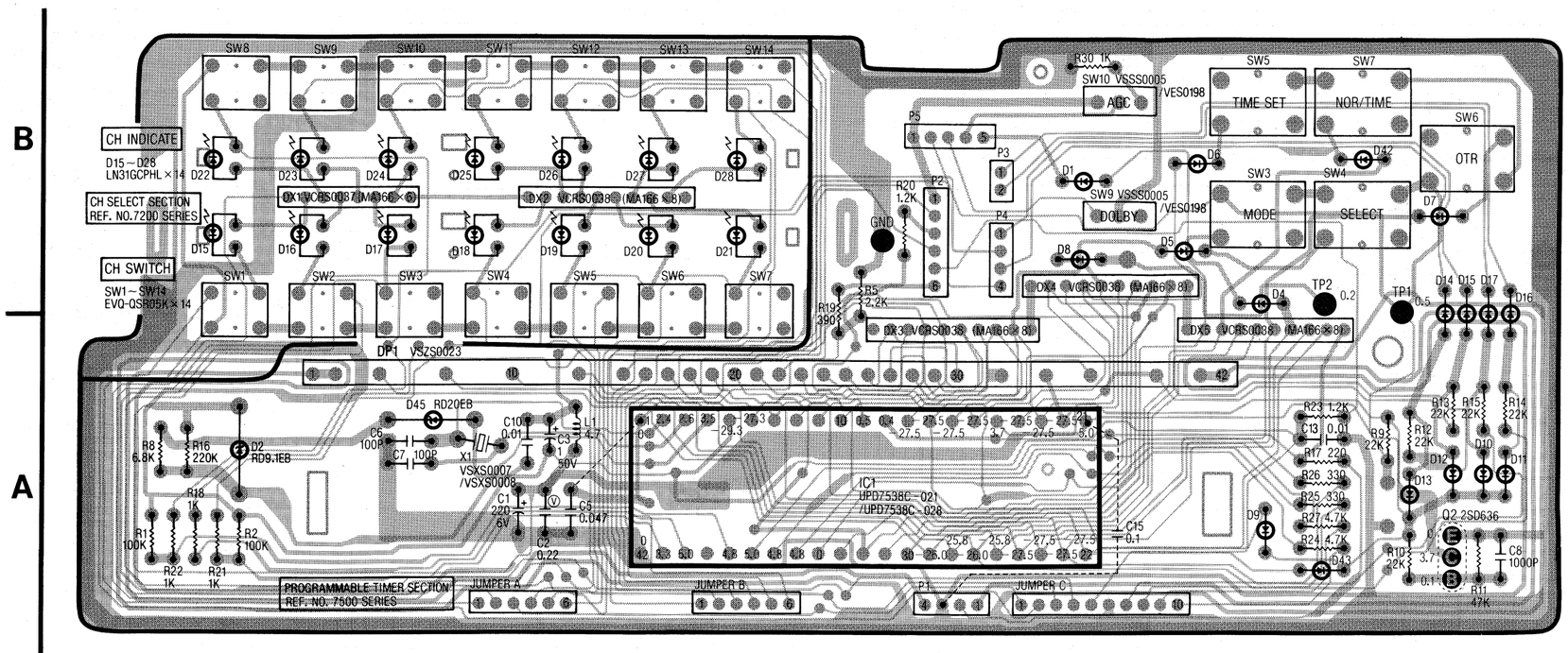
CHANNEL SELECT)

IED;
E 1/4W.

# PROGRAMMABLE TIMER C.B.A. VEPS07117D1



VOLTAGE MEASUREMENT : COLOR BAR SIGNAL
IN STOP MODE.




UNLESS OTHERWISE SPECIFIED;
SWITCHES ARE EVQQJ104K,
DIODES ARE MA166 AND
WATTAGE OF RESISTORS ARE 1/4W.

VJBS07117 ②

JUMPER A

| | |
|---|---|
| 1 | KEY IN |
| 2 | CH LED |
| 3 | CH 7 |
| 4 | CH 4 |
| 5 | CH 6 |
| 6 | CH 5 |

JUMPER B

| | |
|---|---|
| 1 | CH 14 |
| 2 | CH 13 |
| 3 | CH 12 |
| 4 | CH 11 |
| 5 | CH 10 |
| 6 | CH 9 |

JUMPER C

| | |
|---|---|
| 1 | CH 8 |
| 2 | CH 3 |
| 3 | CH 1 |
| 4 | CH 2 |
| 5 | TIMER SET Ⓛ |
| 6 | GND |
| 7 | CH UP |
| 8 | CH DOWN |
| 9 | CH LOCK Ⓛ |
| 10 | TV/VCR |

P7501

| | |
|---|---|
| 1 | AC4.3V |
| 2 | – 30V |
| 3 | GND |
| 4 | AC4.3V |

P7502

| | |
|---|---|
| 1 | + 5V |
| 2 | + 5V |
| 3 | TIMER REC Ⓛ |
| 4 | SERIAL CLOCK |
| 5 | TIMER SET Ⓛ |
| 6 | IC7501 RESET |

P7503

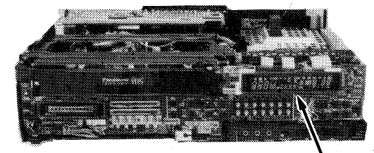
| | |
|---|---|
| 1 | IR CH UP |
| 2 | IR CH DOWN |

P7504

| | |
|---|---|
| 1 | TV/VCR SW |
| 2 | SERIAL DATA |
| 3 | SAFETY TAB SW |
| 4 | 349KHz |

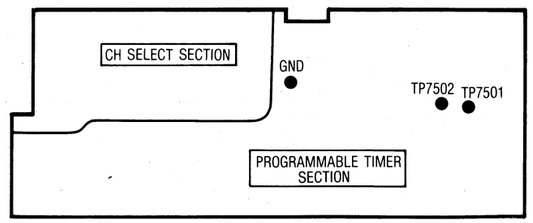
P7505

| | |
|---|---|
| 1 | + 5V |
| 2 | DATA 7 |
| 3 | DOLBY ON Ⓗ |
| 4 | AGC ON Ⓛ |
| 5 | SCAN 5 |



PROGRAMMABLE TIMER C.B.A.

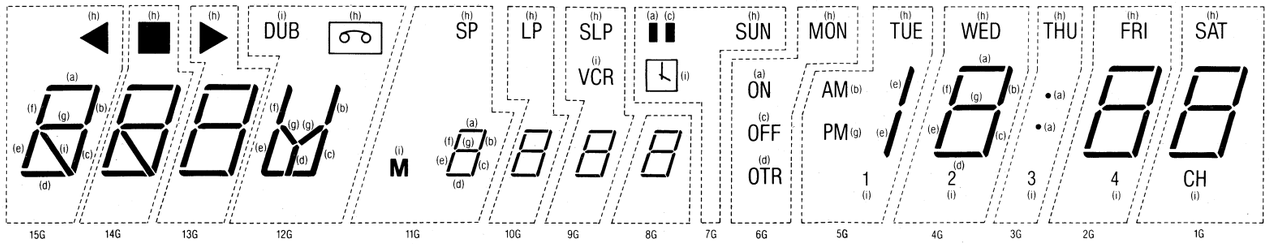
## LOCATION OF TEST POINTS




# IC7501
# KEY MATRIX CHART

| SCAN OUT | DATA IN |
|---|---|
| PIN NO. | 17 (DATA IN) |
| 15 (SCAN 1) | SELECT |
| 19 (SCAN 2) | TIME SET |
| 24 (SCAN 3) | MODE |
| 25 (SCAN 4) | OTR |
| 29 (SCAN 5) | TIMER |
| 28 (SCAN 6) | RETURN |

# DISPLAY TUBE (DP7501) CONNECTION CHART




| PIN NO. | SIGNAL NAME |
|---|---|
| 1 | FILAMENT |
| 2 | FILAMENT |
| 3 | ——— |
| 4 | GRID 15G |
| 5 | ——— |
| 6 | ——— |
| 7 | GRID 14G |
| 8 | ——— |
| 9 | ——— |
| 10 | GRID 13G |

| PIN NO. | SIGNAL NAME |
|---|---|
| 11 | ——— |
| 12 | ——— |
| 13 | GRID 12G |
| 14 | ——— |
| 15 | SEGMENT e |
| 16 | SEGMENT c |
| 17 | GRID 11G |
| 18 | SEGMENT g |
| 19 | GRID 10G |
| 20 | SEGMENT b |

| PIN NO. | SIGNAL NAME |
|---|---|
| 21 | GRID 9G |
| 22 | SEGMENT f |
| 23 | GRID 8G |
| 24 | GRID 7G |
| 25 | SEGMENT a |
| 26 | GRID 6G |
| 27 | SEGMENT h |
| 28 | SEGMENT d |
| 29 | GRID 5G |
| 30 | ——— |

| PIN NO. | SIGNAL NAME |
|---|---|
| 31 | ——— |
| 32 | GRID 4G |
| 33 | ——— |
| 34 | GRID 3G |
| 35 | ——— |
| 36 | GRID 2G |
| 37 | ——— |
| 38 | ——— |
| 39 | GRID 1G |
| 40 | ——— |

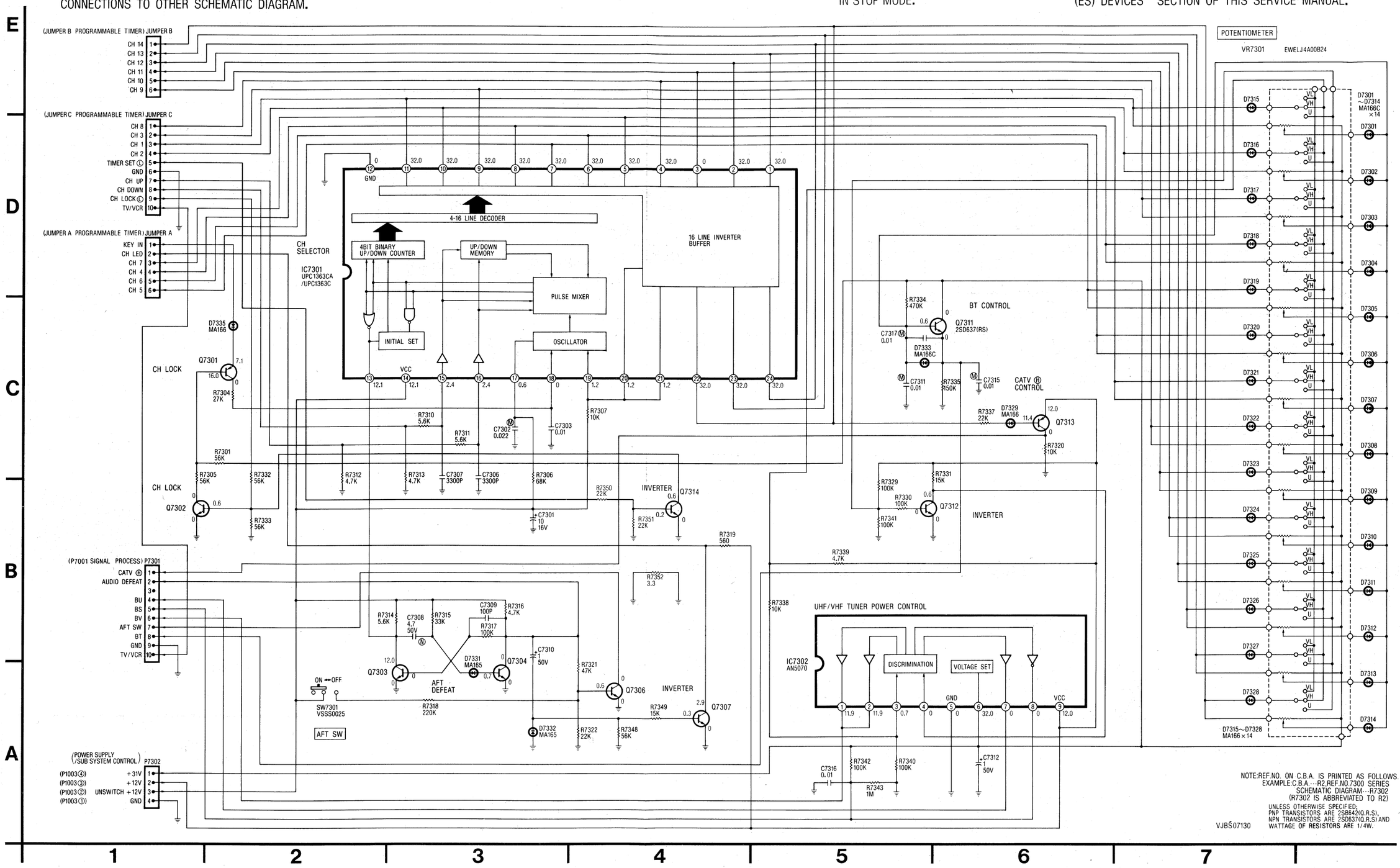
| PIN NO. | SIGNAL NAME |
|---|---|
| 41 | FILAMENT |
| 42 | FILAMENT |

# CHANNEL SELECT SCHEMATIC DIAGRAM

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN STOP MODE.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.




| CHANNEL SELECT | |
|---|---|
| Q7301 | 2-C |
| Q7302 | 1-B |
| Q7303 | 3-A |
| Q7304 | 3-A |
| Q7306 | 4-A |
| Q7307 | 4-A |
| Q7311 | 5-C |
| Q7312 | 6-B |
| Q7313 | 6-C |
| Q7314 | 4-B |

NOTE:REF.NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2,REF.NO.7300 SERIES SCHEMATIC DIAGRAM···R7302 (R7302 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED;
PNP TRANSISTORS ARE 2SB642(Q,R,S),
NPN TRANSISTORS ARE 2SD637(Q,R,S) AND
WATTAGE OF RESISTORS ARE 1/4W.

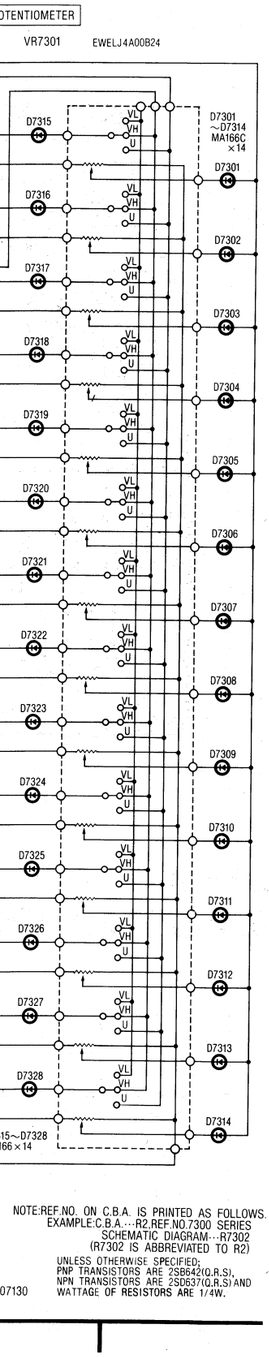
VJBS07130

CHANNEL S

ND MANY OTHER SEMICONDUCTOR DEVICES ARE
VE AND THEREFORE REQUIRE THE SPECIAL
RIBED UNDER THE "ELECTROSTATICALLY SENSITIVE
THIS SERVICE MANUAL.

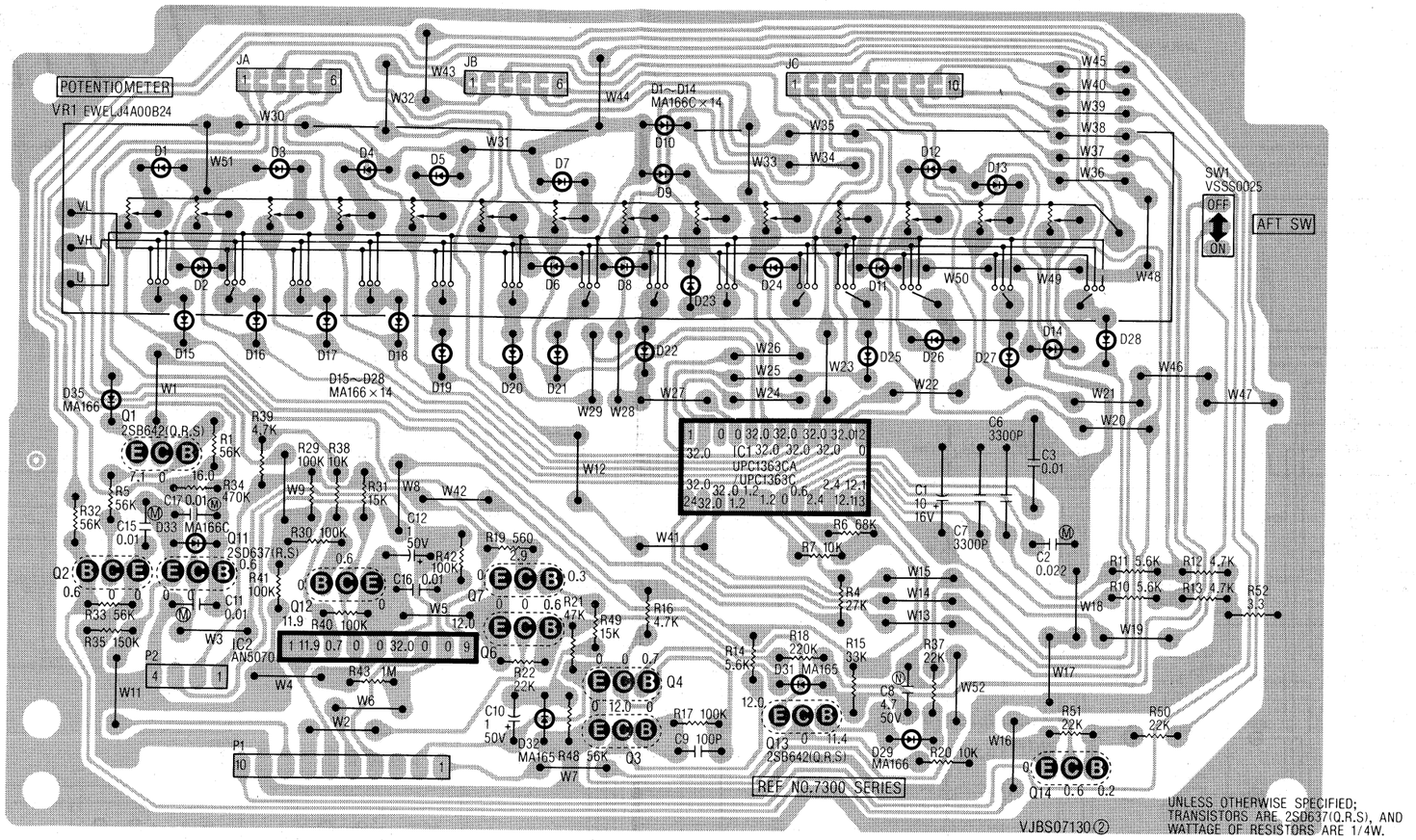
# CHANNEL SELECT C.B.A. VEPS07130A1

VOLTAGE MEASUREMENT : COLOR BAR SIGNAL
IN STOP MODE.



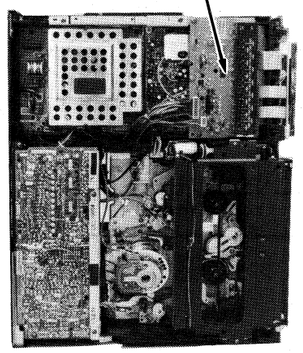

| CHANNEL SELECT | |
|---|---|
| Q7301 | 2-C |
| Q7302 | 1-B |
| Q7303 | 3-A |
| Q7304 | 3-A |
| Q7306 | 4-A |
| Q7307 | 4-A |
| Q7311 | 5-C |
| Q7312 | 6-B |
| Q7313 | 6-C |
| Q7314 | 4-B |

NOTE:REF.NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2,REF.NO.7300 SERIES
SCHEMATIC DIAGRAM···R7302
(R7302 IS ABBREVIATED TO R2)
UNLESS OTHERWISE SPECIFIED;
PNP TRANSISTORS ARE 2SB642(Q,R,S),
NPN TRANSISTORS ARE 2SD637(Q,R,S) AND
WATTAGE OF RESISTORS ARE 1/4W.
07130




| CHANNEL SELECT C.B.A. | |
|---|---|
| Q1 | 1-B |
| Q2 | 1-A |
| Q3 | 2-A |
| Q4 | 2-A |
| Q6 | 2-A |
| Q7 | 2-A |
| Q11 | 1-A |
| Q12 | 1-A |
| Q13 | 3-A |
| Q14 | 3-A |

CHANNEL SELECT C.B.A.



P7301

| | |
|---|---|
| 1 | CATV Ⓗ |
| 2 | AUDIO DEFEAT |
| 3 | |
| 4 | BU |
| 5 | BS |
| 6 | BV |
| 7 | AFT SW |
| 8 | BT |
| 9 | GND |
| 10 | TV/VCR |

P7302

| | |
|---|---|
| 1 | +31V |
| 2 | +12V |
| 3 | UNSWITCH +12V |
| 4 | GND |

JUMPER A

| | |
|---|---|
| 1 | KEY IN |
| 2 | CH LED |
| 3 | CH 7 |
| 4 | CH 4 |
| 5 | CH 6 |
| 6 | CH 5 |

JUMPER B

| | |
|---|---|
| 1 | CH 14 |
| 2 | CH 13 |
| 3 | CH 12 |
| 4 | CH 11 |
| 5 | CH 10 |
| 6 | CH 9 |

JUMPER C

| | |
|---|---|
| 1 | CH 8 |
| 2 | CH 3 |
| 3 | CH 1 |
| 4 | CH 2 |
| 5 | TIMER SET Ⓛ |
| 6 | GND |
| 7 | CH UP |
| 8 | CH DOWN |
| 9 | CH LOCK Ⓛ |
| 10 | TV/VCR |

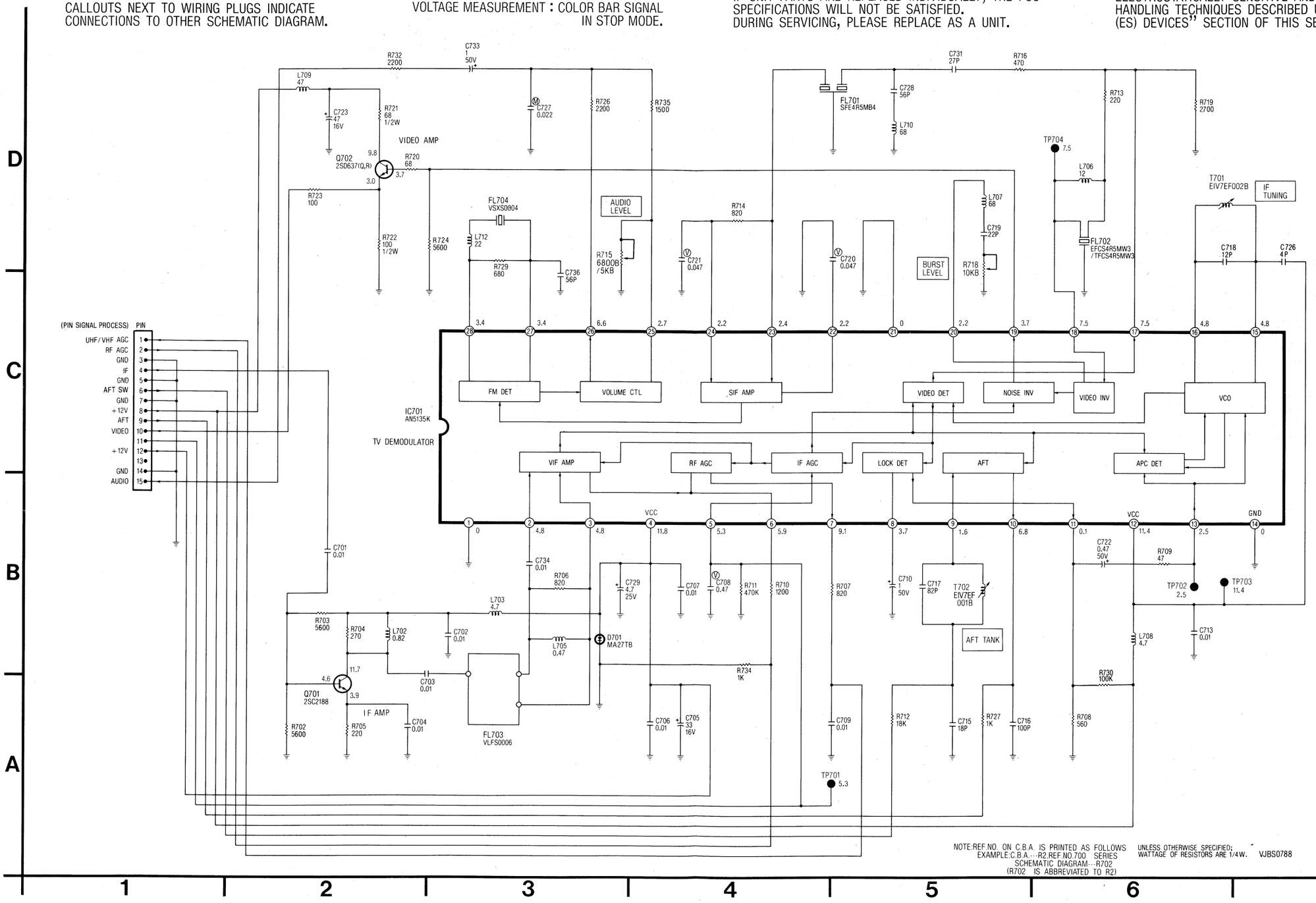
# TV DEMODULATOR SCHEMATIC DIAGRAM

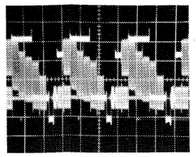
CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

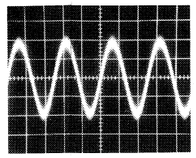
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL IN STOP MODE.

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.





TV DEMODU UNIT PIN ⑭ STOP.
0.2V/20Usec. div.


TV DEMODU UNIT PIN ⑮ STOP.
50mV/1msec. div.

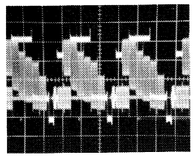
NOTE:REF.NO. ON C.B.A. IS PRINTED AS FOLLOWS
EXAMPLE:C.B.A.···R2.REF.NO.700 SERIES
SCHEMATIC DIAGRAM···R702
(R702 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS ARE 1/4W.

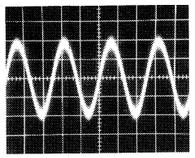
VJBS0788

# TV DEMODULATOR UNIT VEQS0257

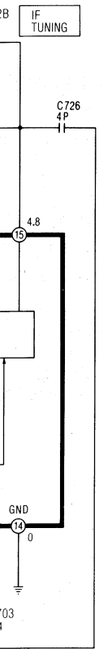
UITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE
ENSITIVE AND THEREFORE REQUIRE THE SPECIAL
DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE
N OF THIS SERVICE MANUAL.

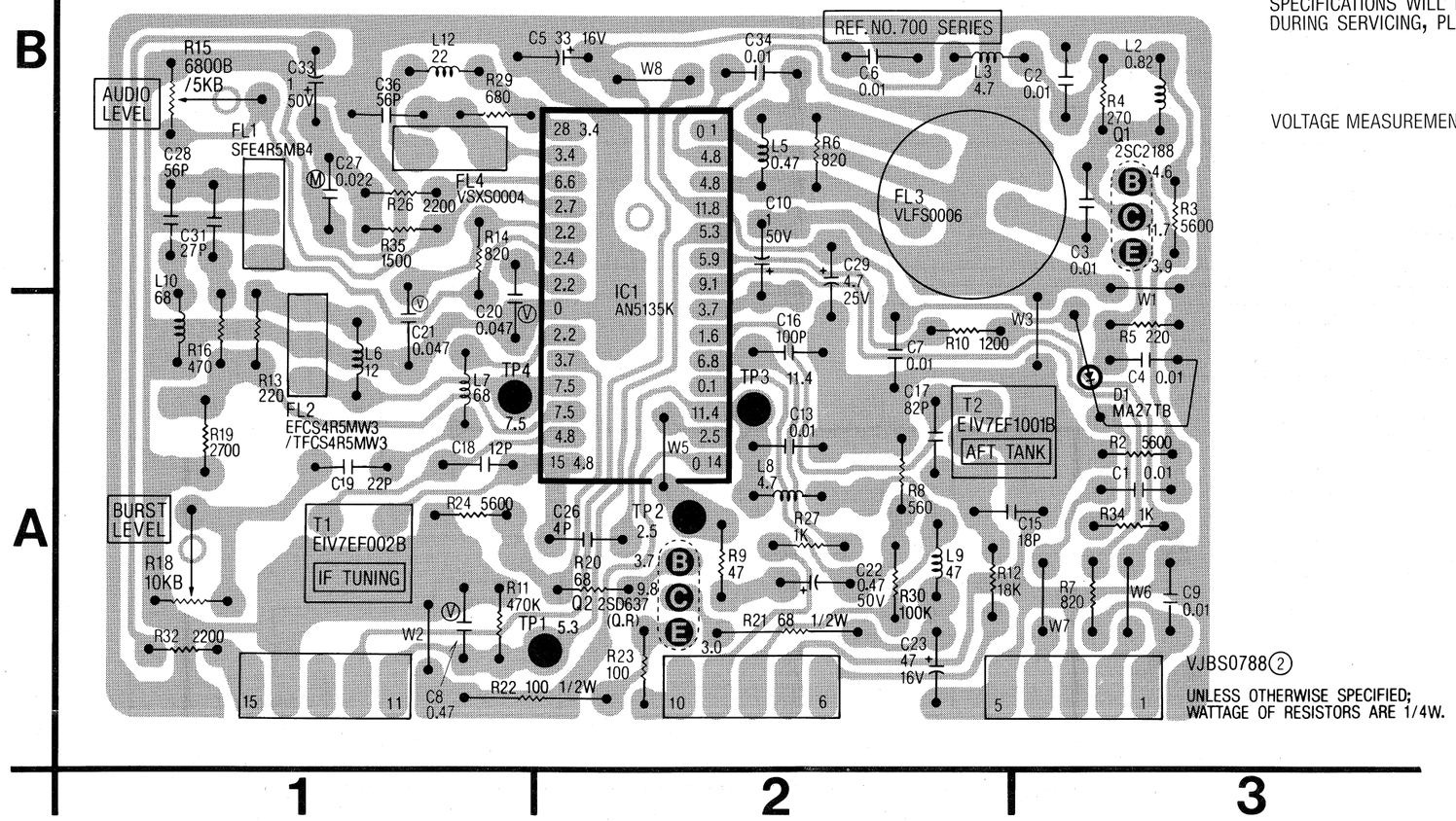


TV DEMODU UNIT PIN ⑮ STOP.
0.2V/20Usec. div.



TV DEMODU UNIT PIN ⑮ STOP.
50mV/1msec. div.




IMPORTANT NOTICE:
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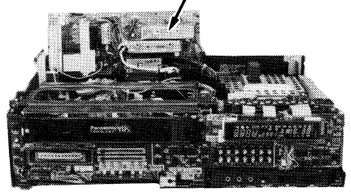
DURING SERVICING, PLEASE REPLACE AS A UNIT.

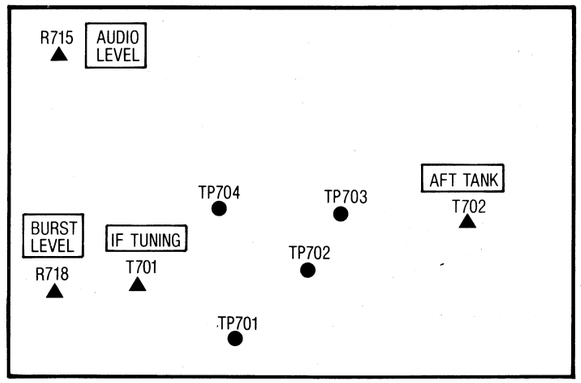
VOLTAGE MEASUREMENT : COLOR BAR SIGNAL
IN STOP MODE.

| PIN | |
|---|---|
| 1 | UHF/VHF AGC |
| 2 | RF AGC |
| 3 | GND |
| 4 | IF |
| 5 | GND |
| 6 | AFT SW |
| 7 | GND |
| 8 | +12V |
| 9 | AFT |
| 10 | VIDEO |
| 11 | |
| 12 | +12V |
| 13 | |
| 14 | GND |
| 15 | AUDIO |

TV DEMODULATOR UNIT



LOCATION OF TEST POINTS & ADJUSTMENT POINTS



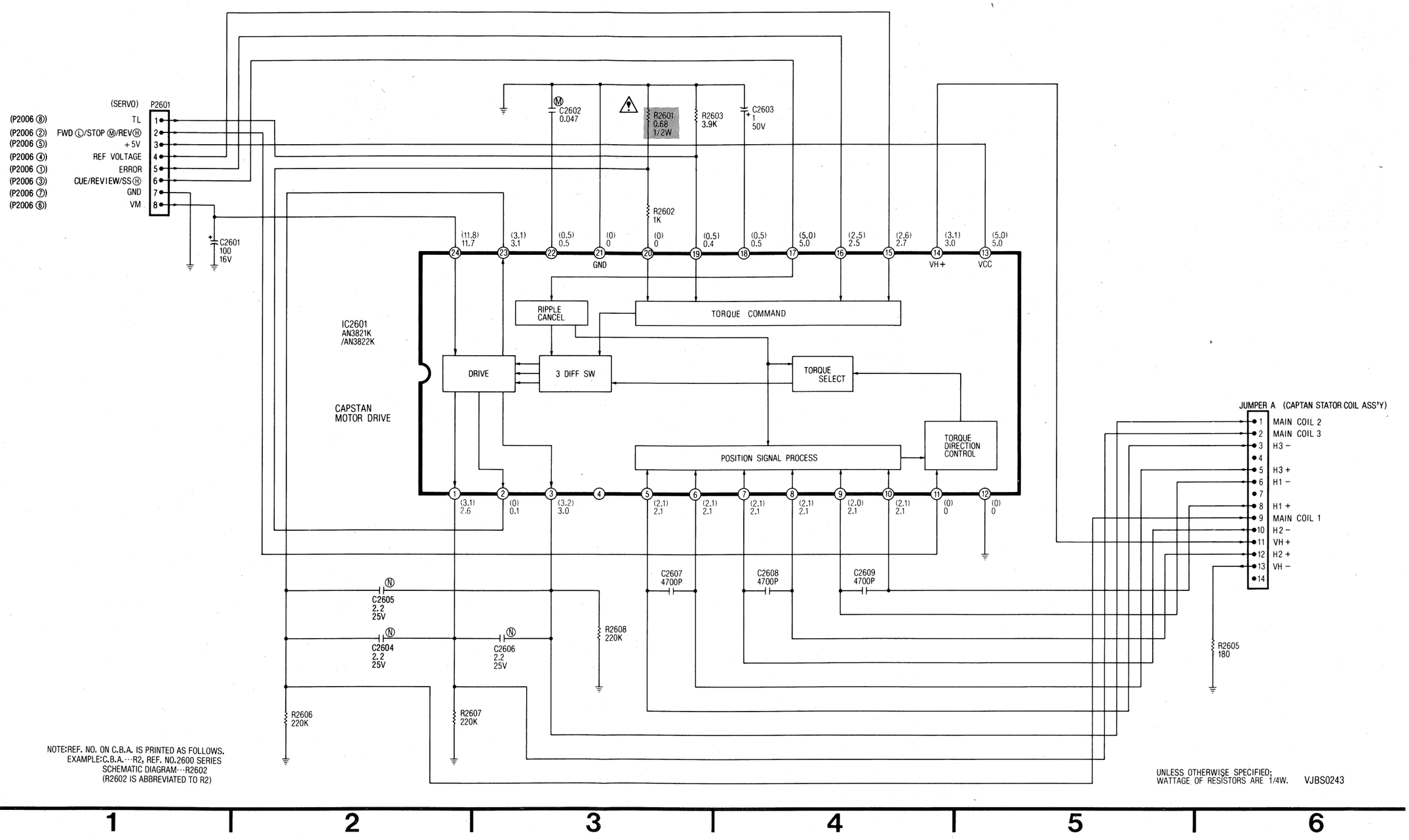
# CAPSTAN MOTOR DRIVE SCHEMATIC DIAGRAM

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.




NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A.···R2, REF. NO.2600 SERIES SCHEMATIC DIAGRAM···R2602
(R2602 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED:
WATTAGE OF RESISTORS ARE 1/4W.

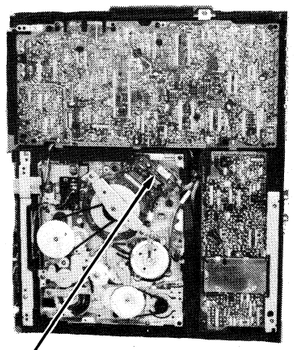
VJBS0243

TE:
ATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE
ITICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL
ECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE
S" SECTION OF THIS SERVICE MANUAL.

# CAPSTAN MOTOR DRIVE C.B.A. VEPS0243C1

VOLTAGE MEASUREMENT : COLOR BAR SIGNAL
IN SP REC MODE.

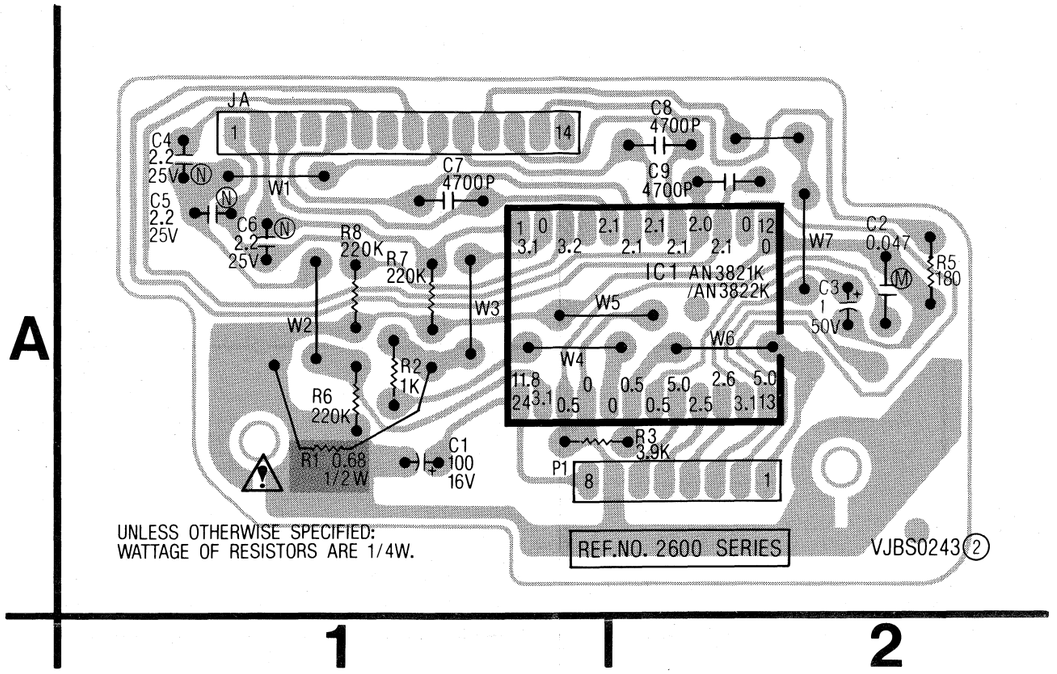
**IMPORTANT SAFETY NOTICE:**
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



CAPSTAN MOTOR DRIVE C.B.A.

JUMPER A (CAPTAN STATOR COIL ASS'Y)

| | |
|---|---|
| 1 | MAIN COIL 2 |
| 2 | MAIN COIL 3 |
| 3 | H3 − |
| 4 | |
| 5 | H3 + |
| 6 | H1 − |
| 7 | |
| 8 | H1 + |
| 9 | MAIN COIL 1 |
| 10 | H2 − |
| 11 | VH + |
| 12 | H2 + |
| 13 | VH − |
| 14 | |




P2601

| | |
|---|---|
| 1 | TL |
| 2 | FWD Ⓛ/STOP Ⓜ/REV Ⓗ |
| 3 | +5V |
| 4 | REF VOLTAGE |
| 5 | ERROR |
| 6 | CUE/REVIEW/SS Ⓗ |
| 7 | GND |
| 8 | VM |

JUMPER A

| | |
|---|---|
| 1 | MAIN COIL 2 |
| 2 | MAIN COIL 3 |
| 3 | H3− |
| 4 | |
| 5 | H3+ |
| 6 | H1− |
| 7 | |
| 8 | H1+ |
| 9 | MAIN COIL 1 |
| 10 | H2− |
| 11 | VH+ |
| 12 | H2+ |
| 13 | VH− |
| 14 | |

| REF.NO. / MODE | IC2601 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 2.0 | 0 | 2.0 | ★ | 2.0 | 2.1 | 2.1 | 2.0 | 2.0 | 2.1 | 2.1 | 0 | 4.9 | 3.0 | 2.6 | 2.2 | 5.0 | 0.6 | 0.5 | 0 |
| REC | 3.1 | 0 | 3.2 | ★ | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.1 | 0 | 0 | 5.0 | 3.1 | 2.6 | 2.5 | 5.0 | 0.5 | 0.5 | 0 |
| PLAY | 2.6 | 0.1 | 3.0 | ★ | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 0 | 0 | 5.0 | 3.0 | 2.7 | 2.5 | 5.0 | 0.5 | 0.4 | 0 |
| CUE | 4.8 | 0.1 | 4.8 | ★ | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 0 | 0 | 4.9 | 3.0 | 2.6 | 2.5 | 5.0 | 0.5 | 0.5 | 0.1 |
| REV | 4.7 | 0.1 | 4.8 | ★ | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 4.7 | 0 | 5.0 | 3.0 | 2.6 | 2.4 | 5.0 | 0.5 | 0.4 | 0.1 |
| F.ADV. | 2.3 | 0 | 2.2 | ★ | 2.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.9 | 0 | 4.9 | 3.0 | 2.6 | 2.7 | 4.9 | 0.5 | 0.4 | 0 |
| SLOW(1/4) | 2.3 | 0 | 2.2 | ★ | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.9 | 0 | 5.0 | 3.0 | 2.6 | 2.0 | 5.0 | 0.5 | 0.5 | 0 |

| REF.NO. / MODE | IC2601 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 21 | 22 | 23 | 24 | | | | | | | | | | | | | | | | |
| STOP | 0 | 0 | 2.0 | 11.8 | | | | | | | | | | | | | | | | |
| REC | 0 | 0.5 | 3.1 | 11.8 | | | | | | | | | | | | | | | | |
| PLAY | 0 | 0.5 | 3.1 | 11.7 | | | | | | | | | | | | | | | | |
| CUE | 0 | 0.5 | 4.8 | 11.8 | | | | | | | | | | | | | | | | |
| REV | 0 | 0.5 | 4.9 | 11.7 | | | | | | | | | | | | | | | | |
| F.ADV. | 0 | 0.2 | 2.0 | 11.8 | | | | | | | | | | | | | | | | |
| SLOW(1/4) | 0 | 0.1 | 2.2 | 11.8 | | | | | | | | | | | | | | | | |

VOLTAGE MEASUREMENT:
1. CUE, REVIEW, FRAME ADVANCE, SLOW.
   COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
   COLOR BAR SIGNAL IN SP MODE.

★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.



2605
80

SE SPECIFIED;
ISTORS ARE 1/4W. VJBS0243

# UHF/VHF TUNER SCHEMATIC DIAGRAM

IMPORTANT NOTICE:
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DURING SERVICING, PLEASE REPLACE AS A UNIT.

SPECIAL NOTE:
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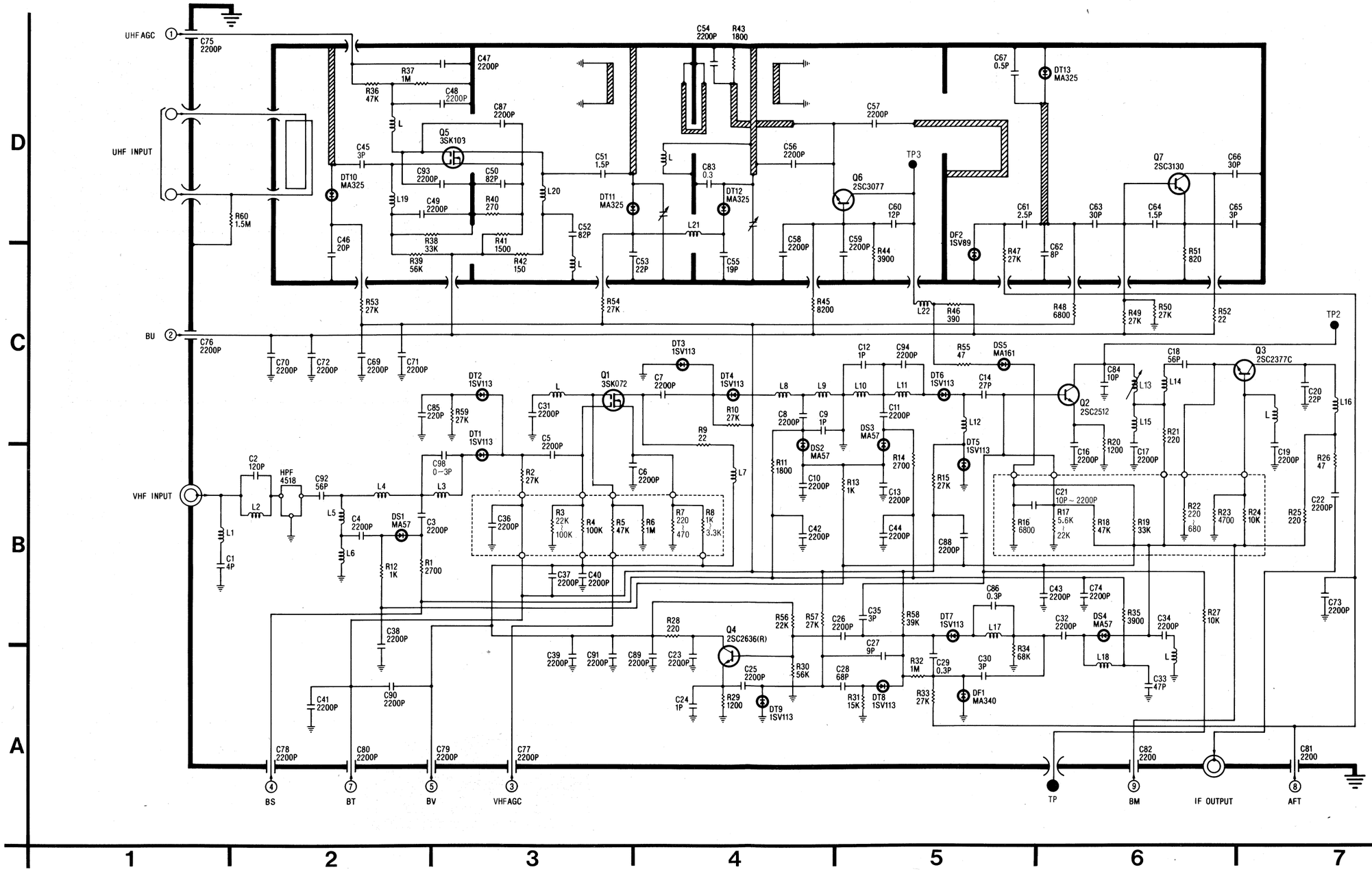

# UHF/VHF TUNER UNIT TNV56751F2R

IMPORTANT NOTICE:
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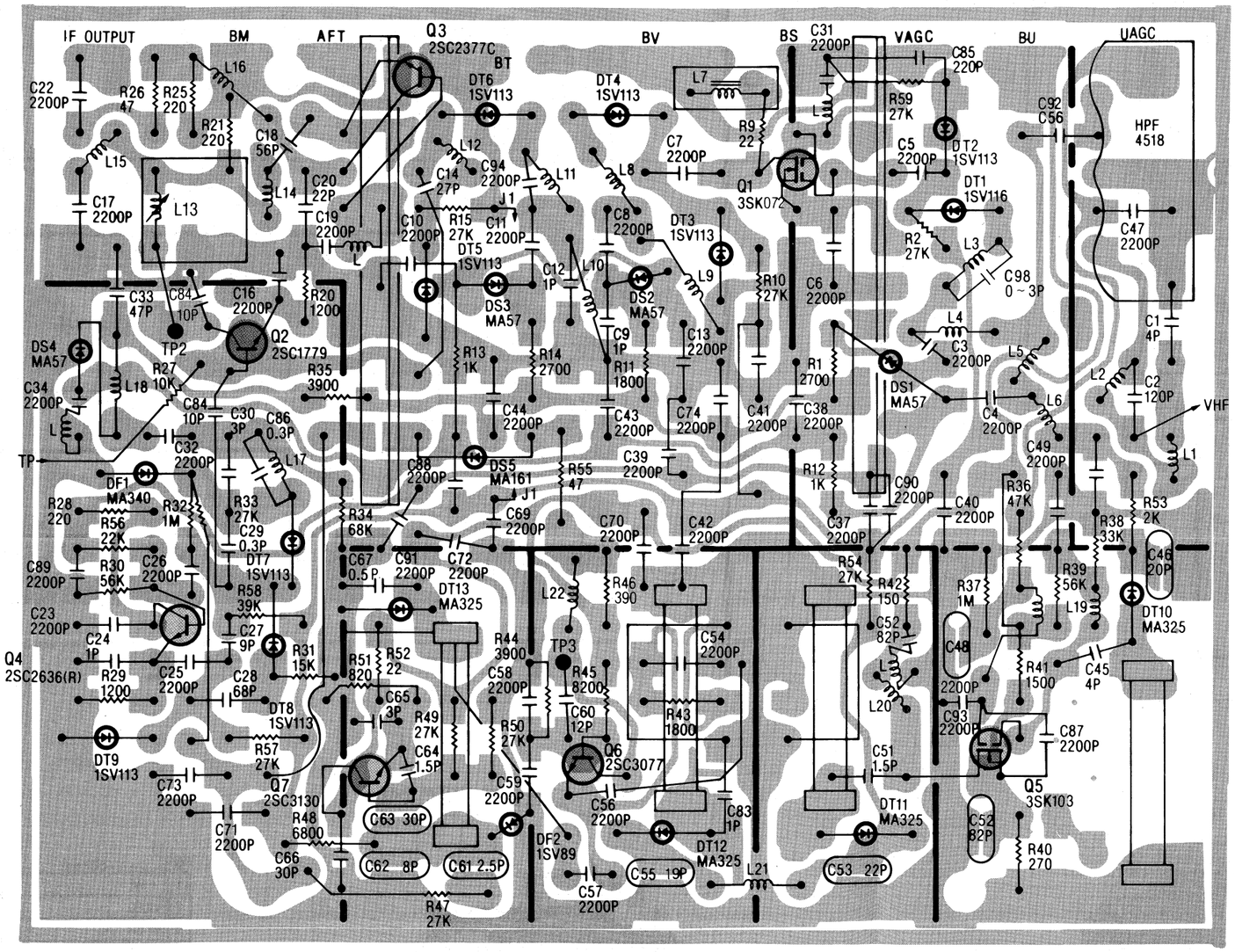
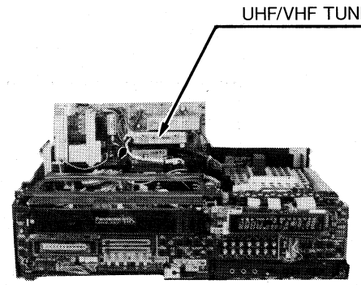
DURING SERVICING, PLEASE REPLACE AS A UNIT.



# RF CONVERTER SCHEMATIC DIAGRAM

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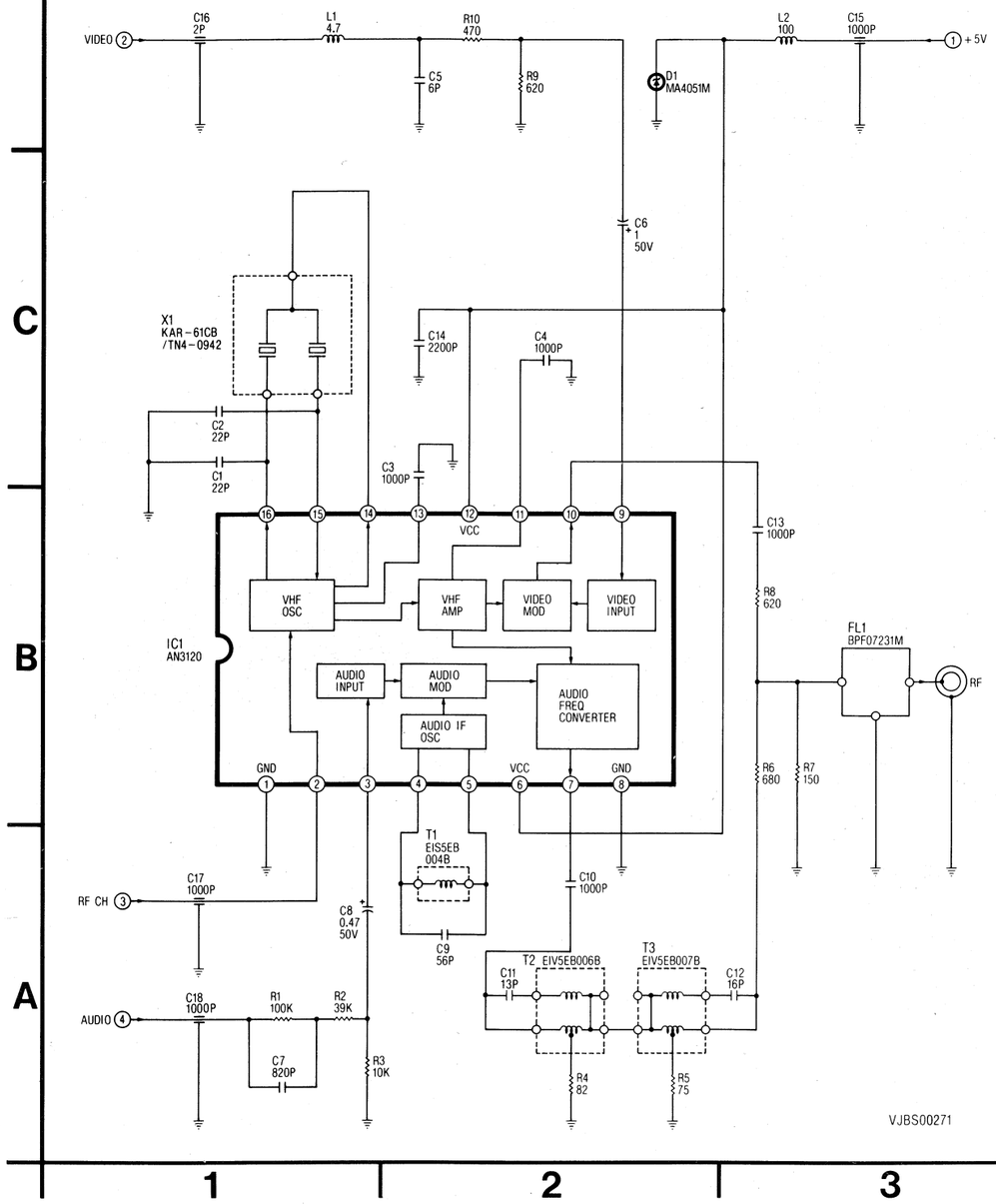
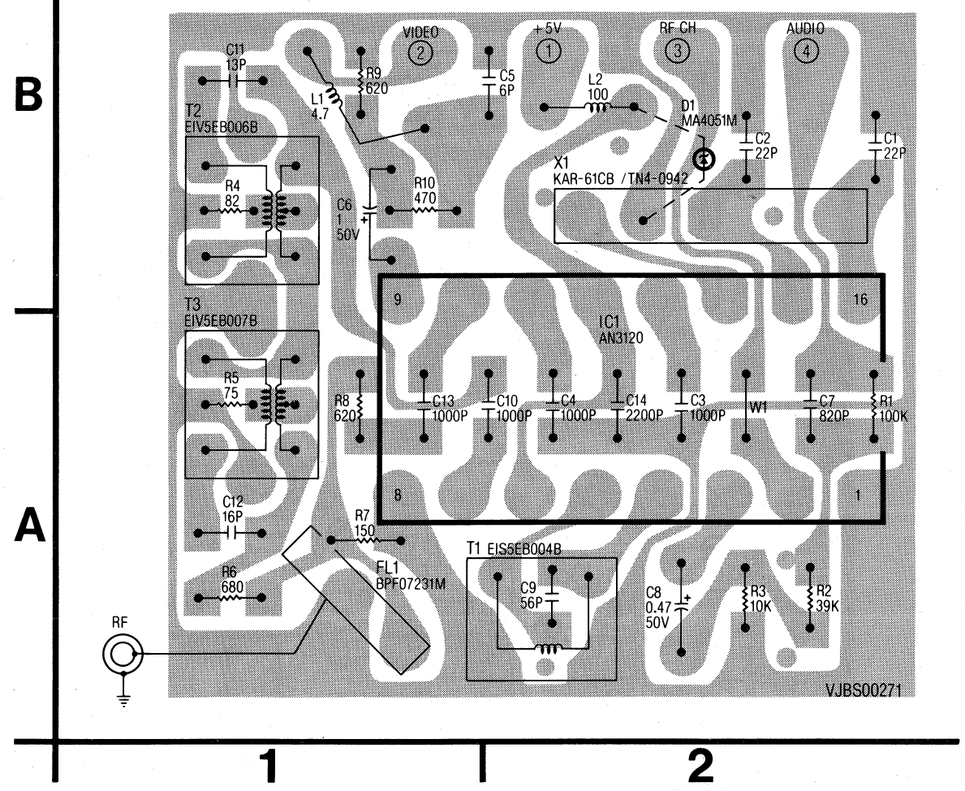
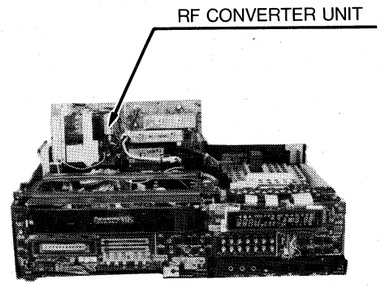



# RF CONVERTER UNIT VEQS0252

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.




PIN

| | |
|---|---|
| 1 | +5V |
| 2 | VIDEO |
| 3 | RF CH |
| 4 | AUDIO |

# RF CONVERTER SCHEMATIC DIAGRAM

IMPORTANT NOTICE:
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SPECIAL NOTE:
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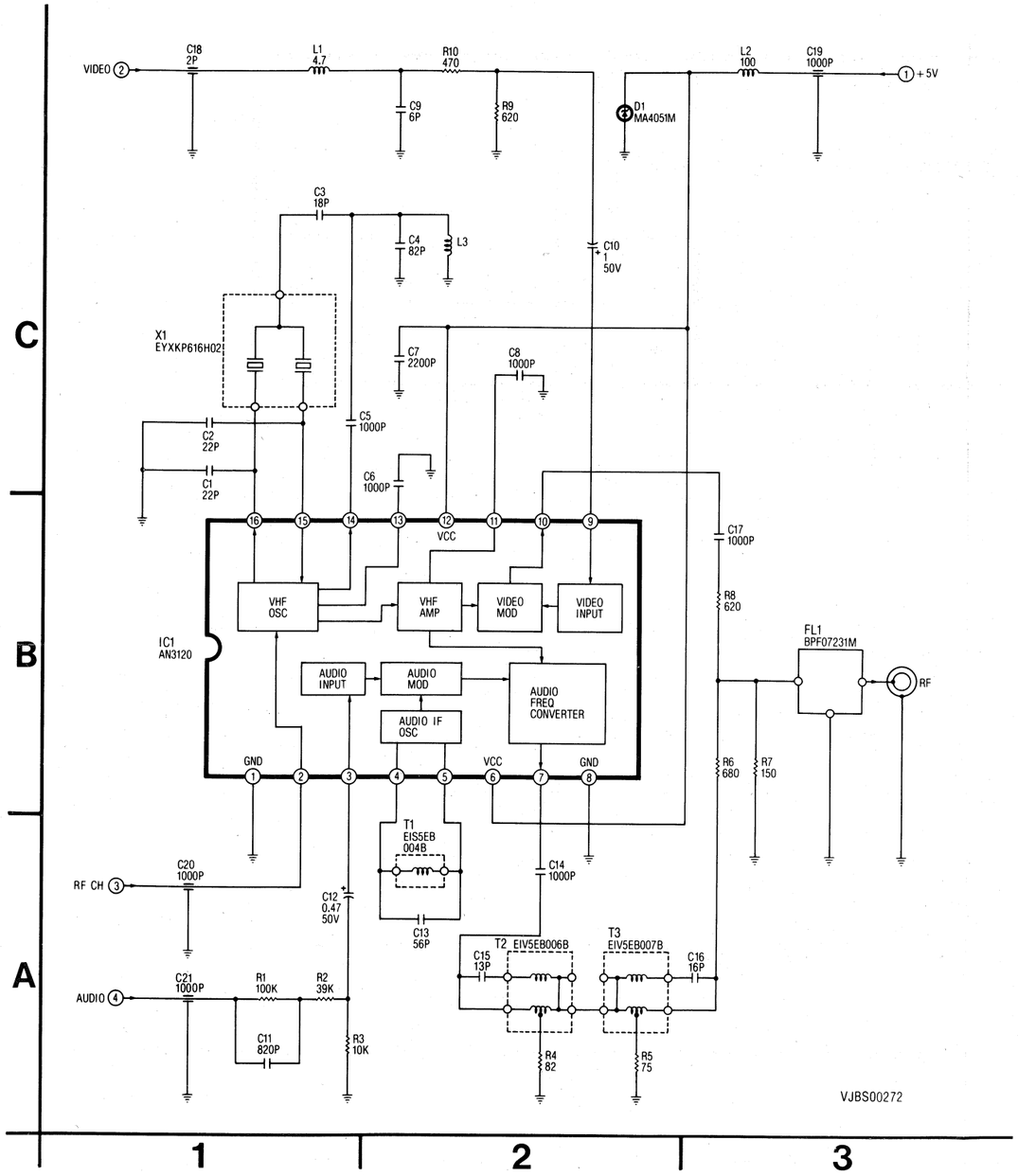
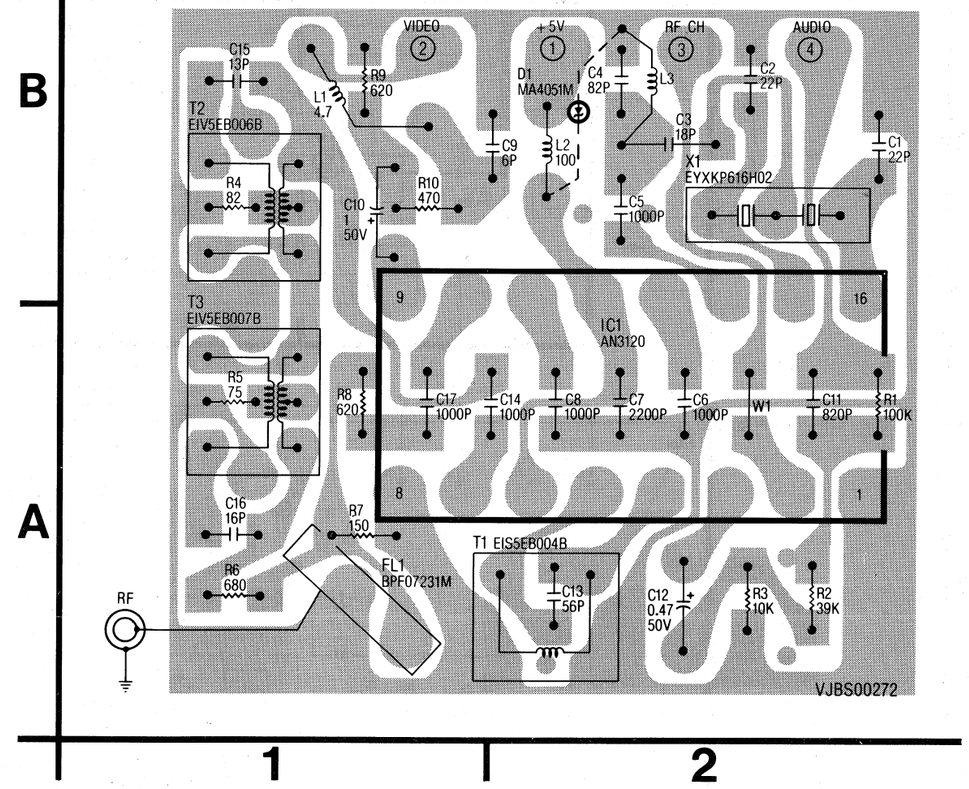
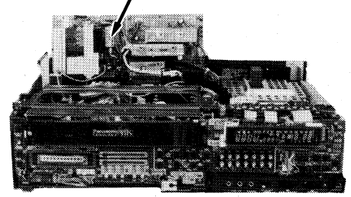



# RF CONVERTER UNIT VEQS0253

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.




RF CONVERTER UNIT



| PIN | |
|---|---|
| 1 | +5V |
| 2 | VIDEO |
| 3 | RF CH |
| 4 | AUDIO |

# RF CONVERTER SCHEMATIC DIAGRAM

IMPORTANT NOTICE:
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DURING SERVICING, PLEASE REPLACE AS A UNIT.

SPECIAL NOTE:
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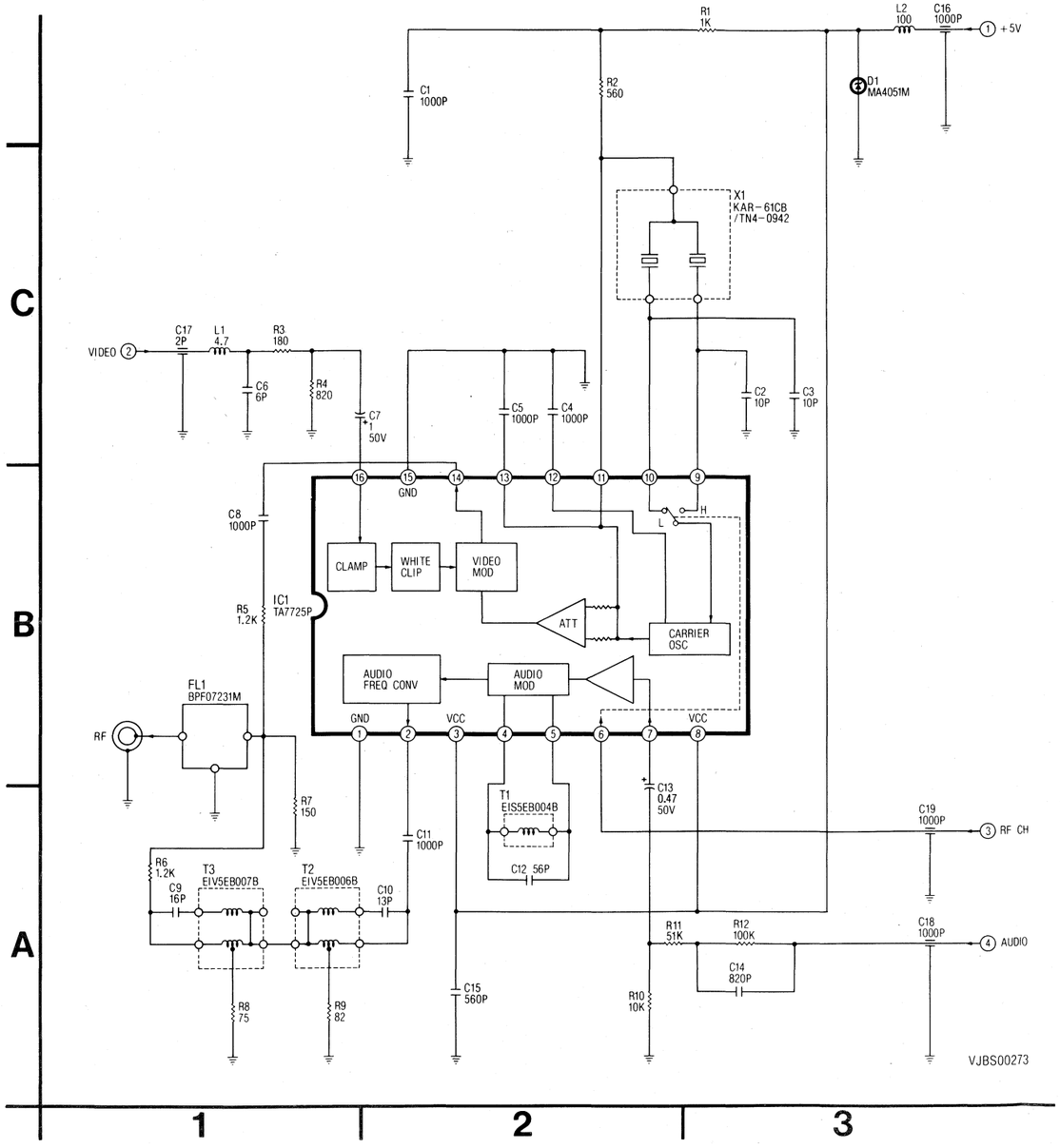
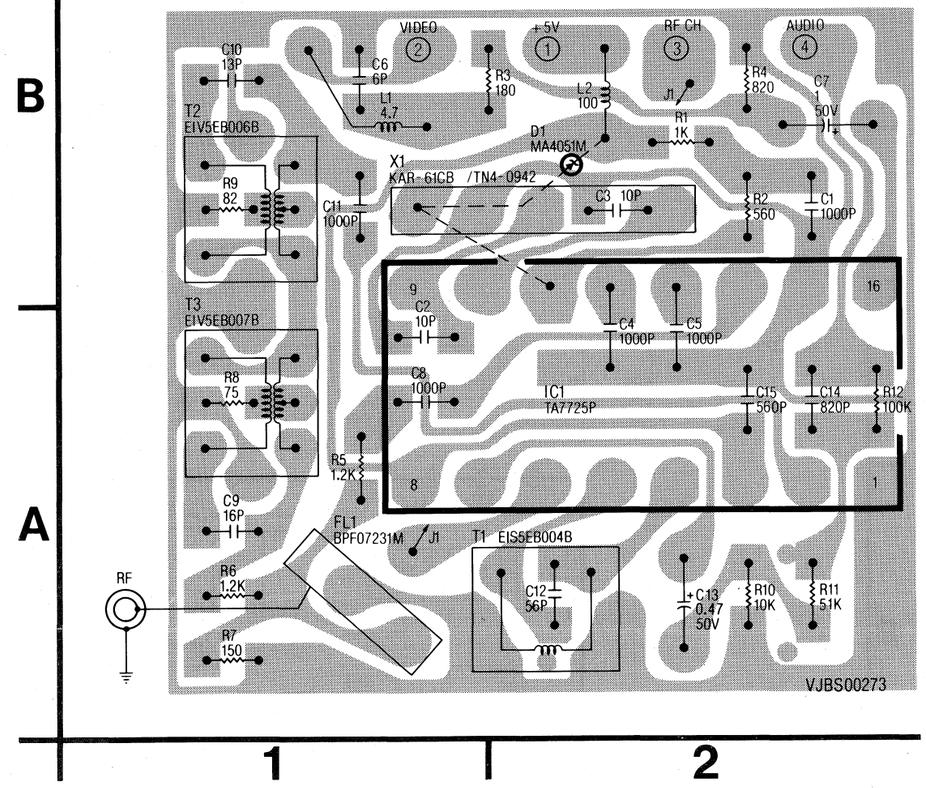


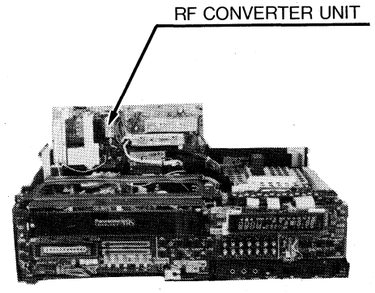



# RF CONVERTER UNIT VEQS0254



IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.




| PIN | |
|---|---|
| 1 | +5V |
| 2 | VIDEO |
| 3 | RF CH |
| 4 | AUDIO |

# RF CONVERTER SCHEMATIC DIAGRAM

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.

SPECIAL NOTE:
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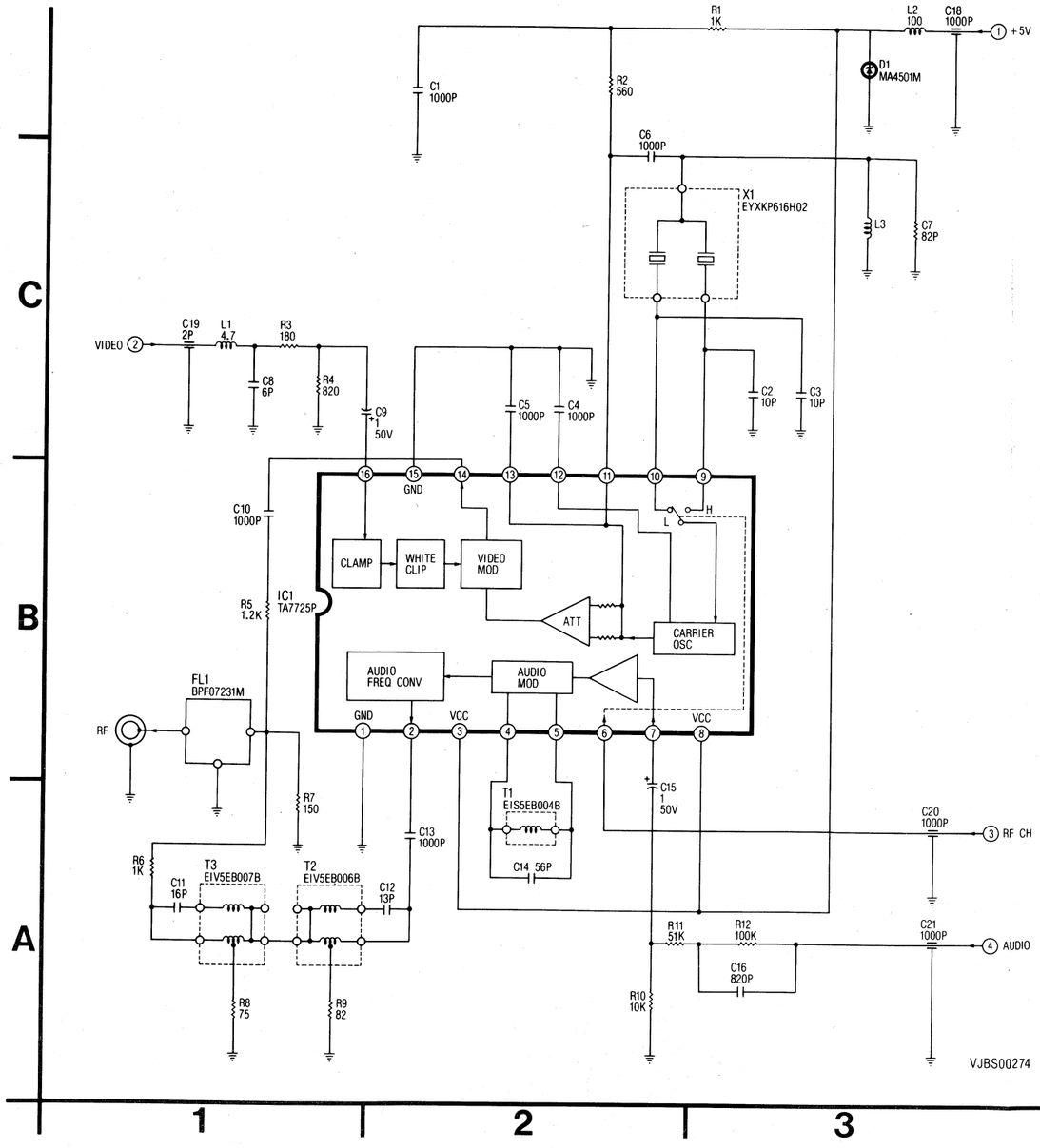
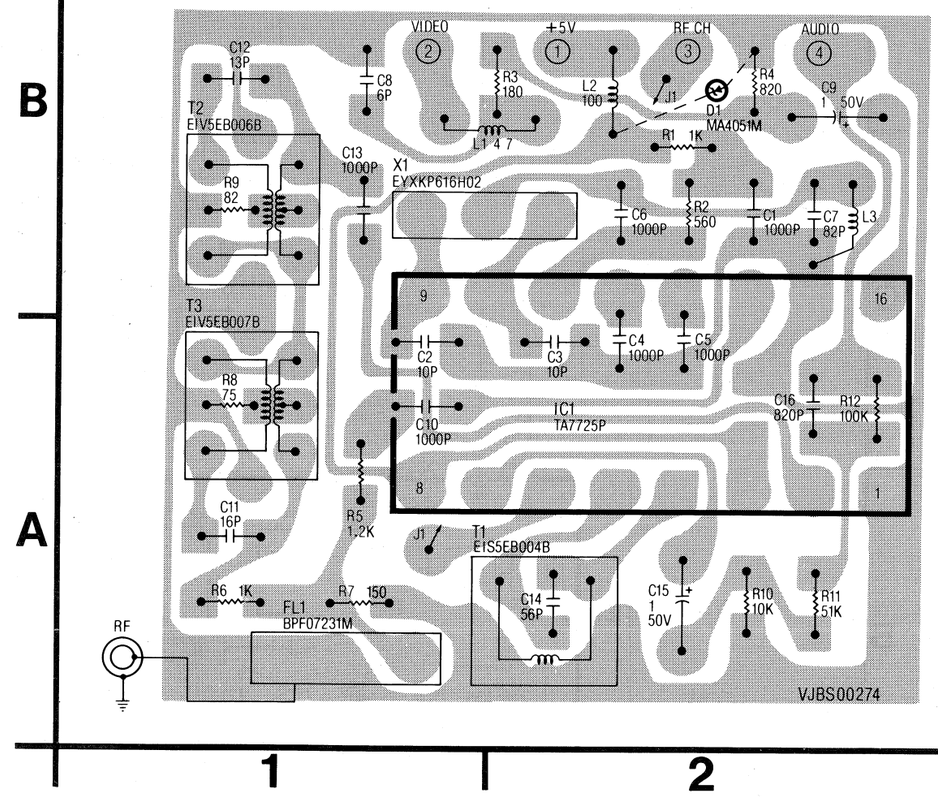
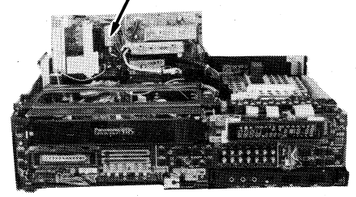



# RF CONVERTER UNIT VEQS0255

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.




RF CONVERTER UNIT



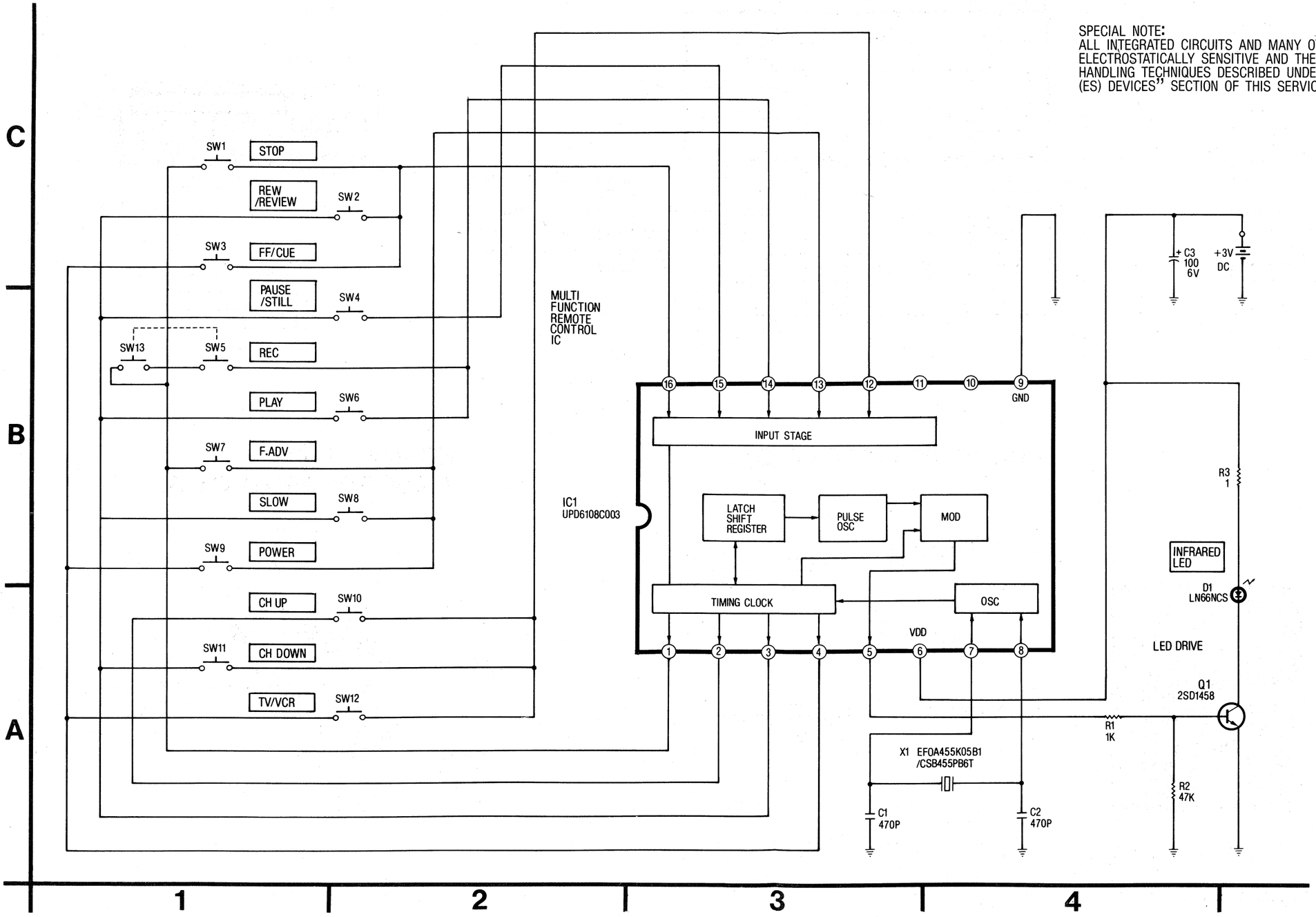
PIN

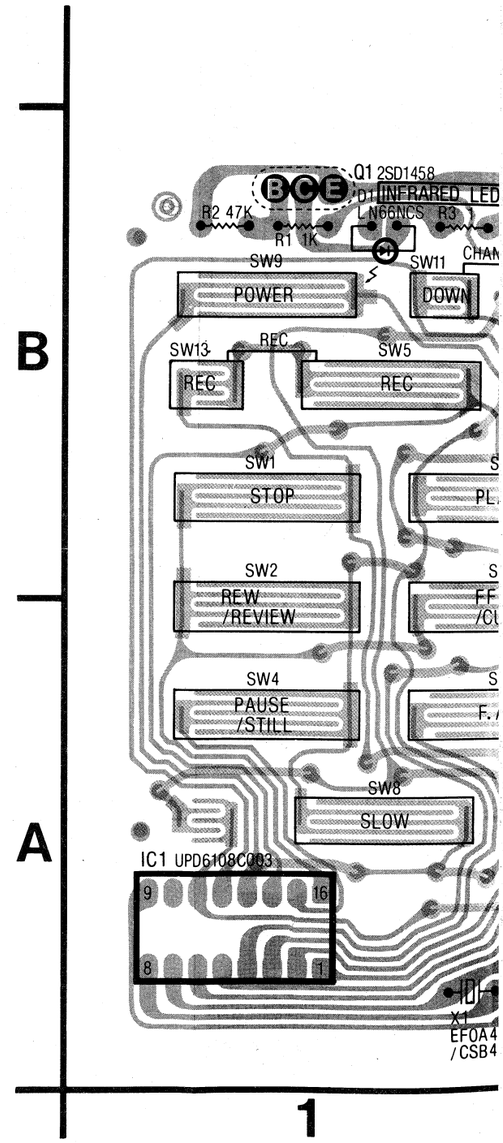
| | |
|---|---|
| 1 | +5V |
| 2 | VIDEO |
| 3 | RF CH |
| 4 | AUDIO |

# IR WIRELESS TRANSMITTER SCHEMATIC DIAGRAM

# IR WIRELESS TRANSI

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



# IR WIRELESS TRANSMITTER UNIT

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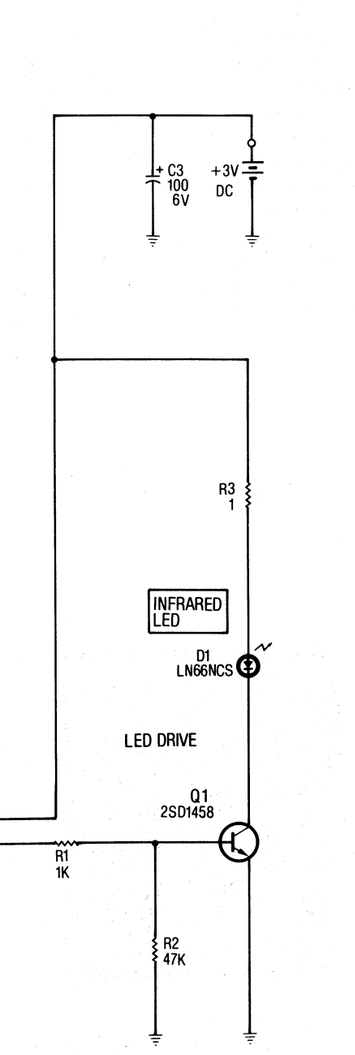
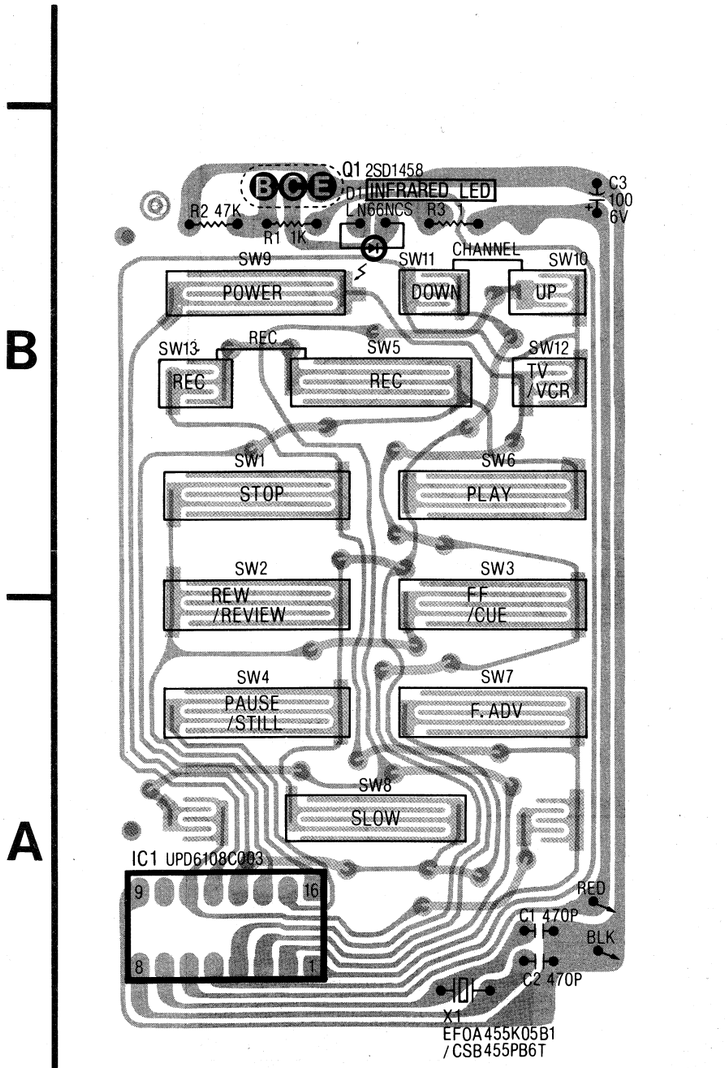
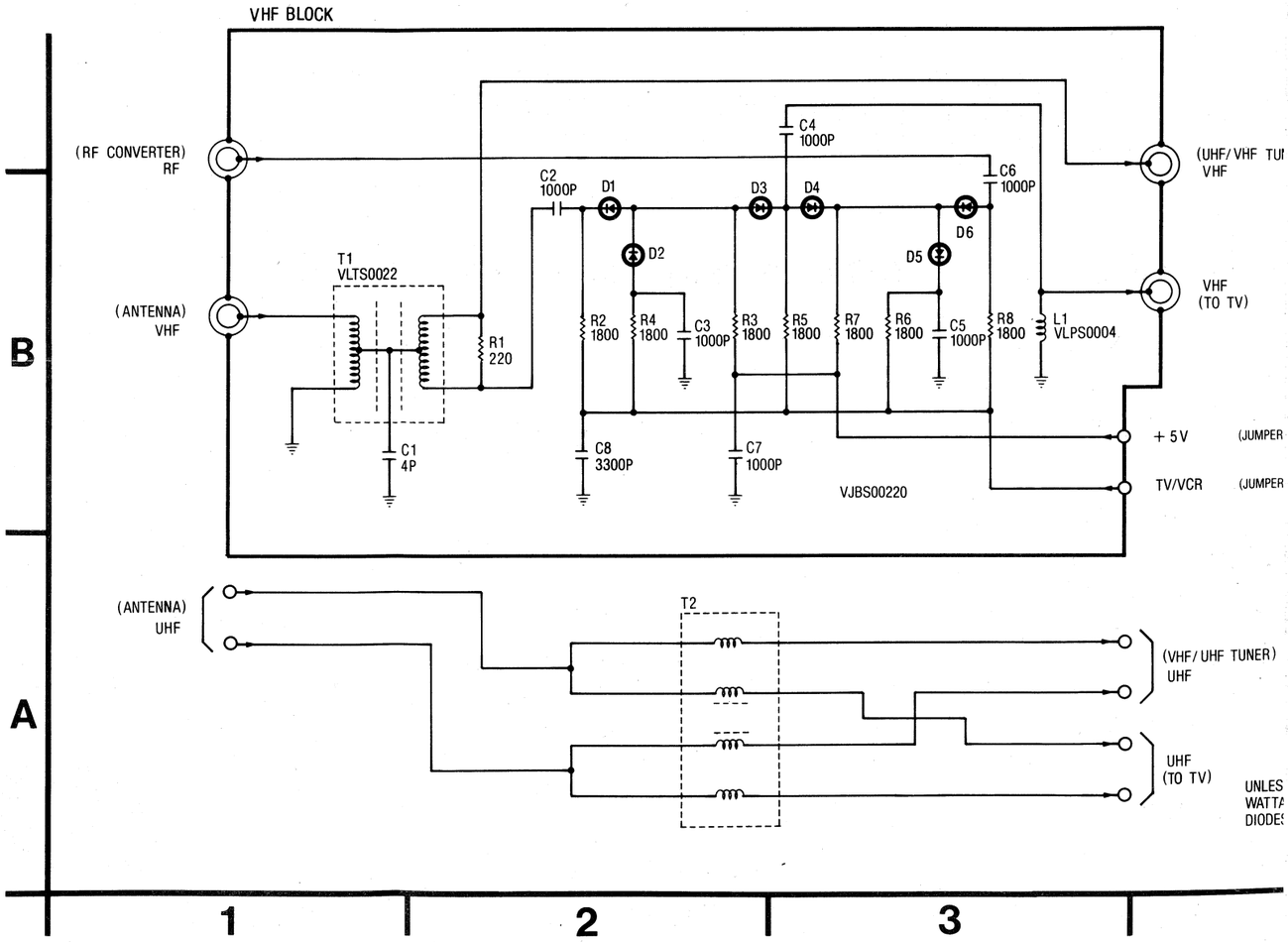



# ANTENNA TERMINAL SCHEMATIC DIAGRAM

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMI
ELECTROSTATICALLY SENSITIVE AND THEREFORE RE
HANDLING TECHNIQUES DESCRIBED UNDER THE "EL
(ES) DEVICES" SECTION OF THIS SERVICE MANUAL



# ANTENNA TERMINAL SCHEMATIC DIAGRAM

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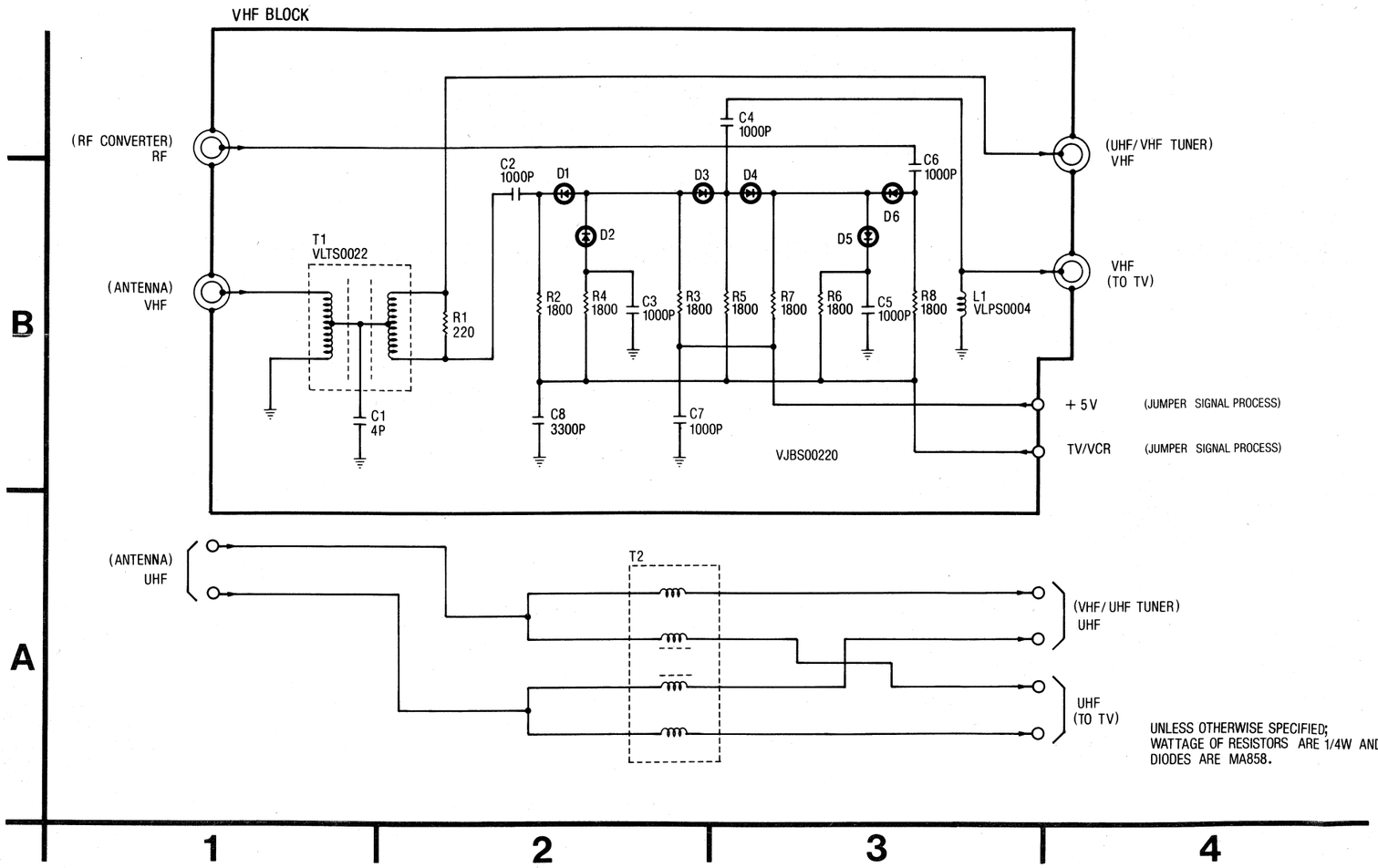
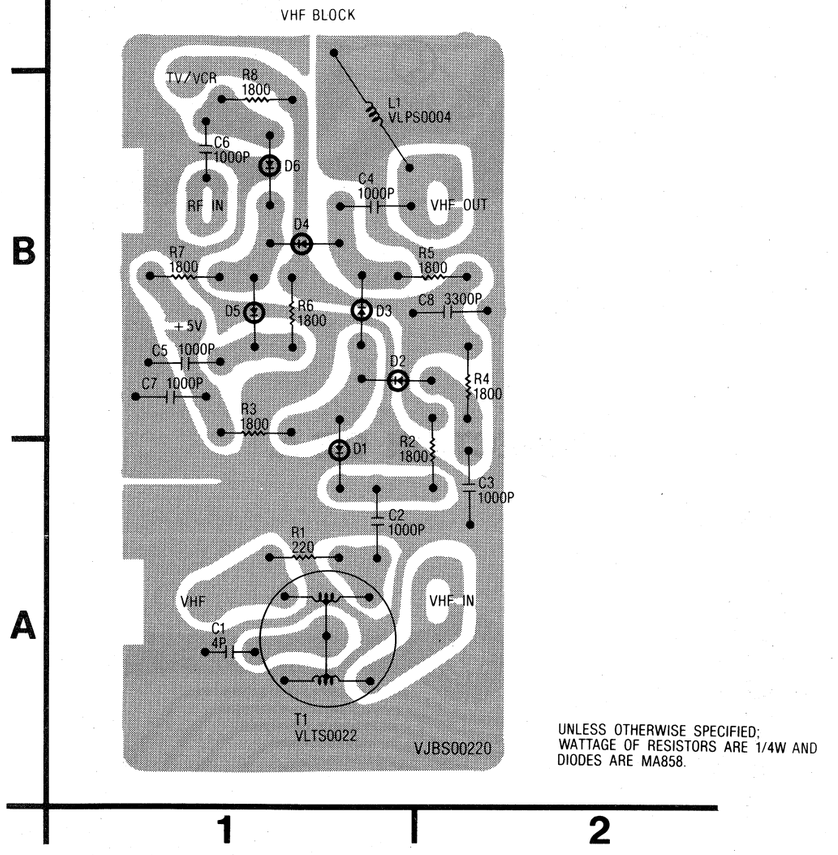


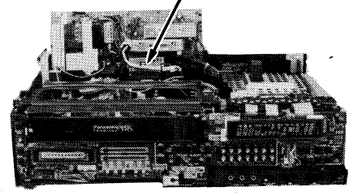

# ANTENNA TERMINAL UNIT

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.

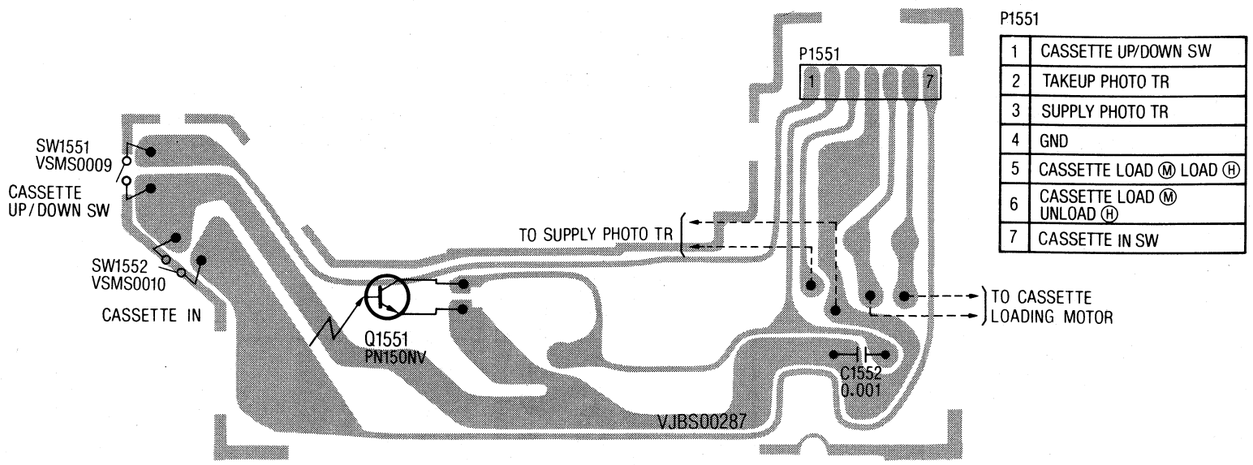



UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS ARE 1/4W AND
DIODES ARE MA858.

ANTENNA TERMINAL UNIT



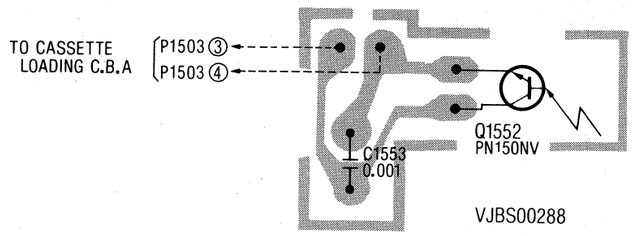
## CASSETTE LOADING C.B.A.




P1551

| | |
|---|---|
| 1 | CASSETTE UP/DOWN SW |
| 2 | TAKEUP PHOTO TR |
| 3 | SUPPLY PHOTO TR |
| 4 | GND |
| 5 | CASSETTE LOAD Ⓜ LOAD Ⓗ |
| 6 | CASSETTE LOAD Ⓜ UNLOAD Ⓗ |
| 7 | CASSETTE IN SW |

## SUPPLY PHOTO TR C.B.A.




SPECIAL NOTE:
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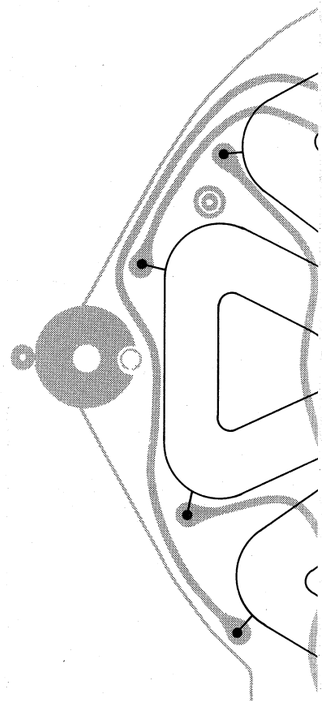
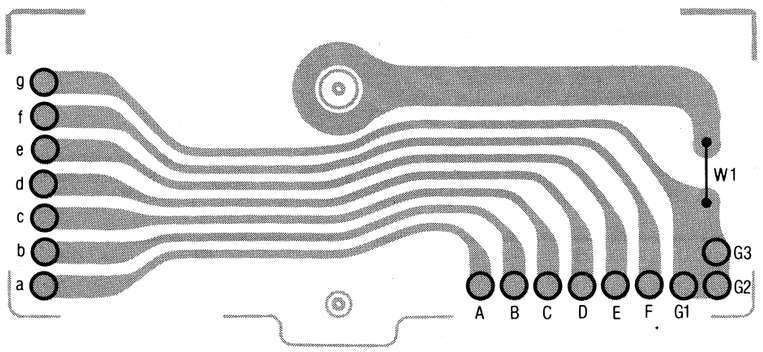
## CAPSTAN S



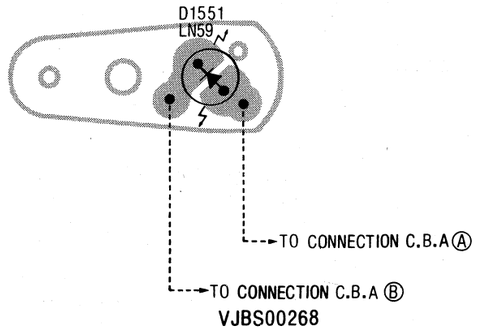
## CONNECTION C.B.A.




VJBS00296

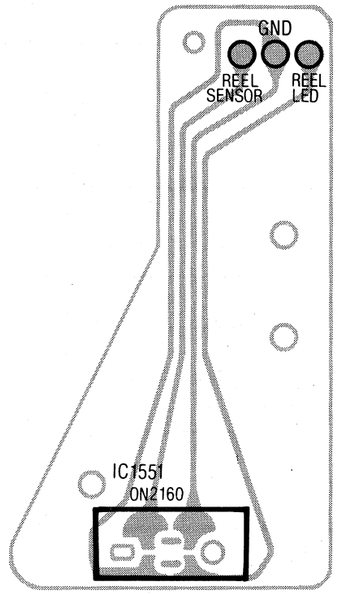
| | |
|---|---|
| a | UNSWITCH +12V |
| b | SENSOR LED PULSE |
| c | DEW SENSOR |
| d | POSITION 2 |
| e | POSITION 3 |
| f | POSITION 1 |
| g | GND |

## SENSOR LED C.B.A.

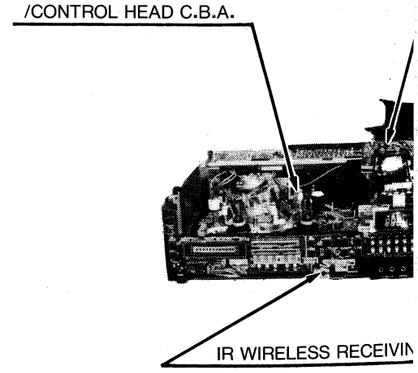



VJBS00268

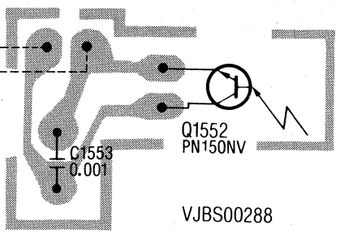
## REEL SENSOR C.B.A. VEPS00269A




VJBS00269



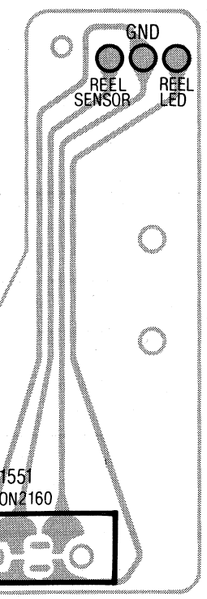
## TO TR C.B.A.



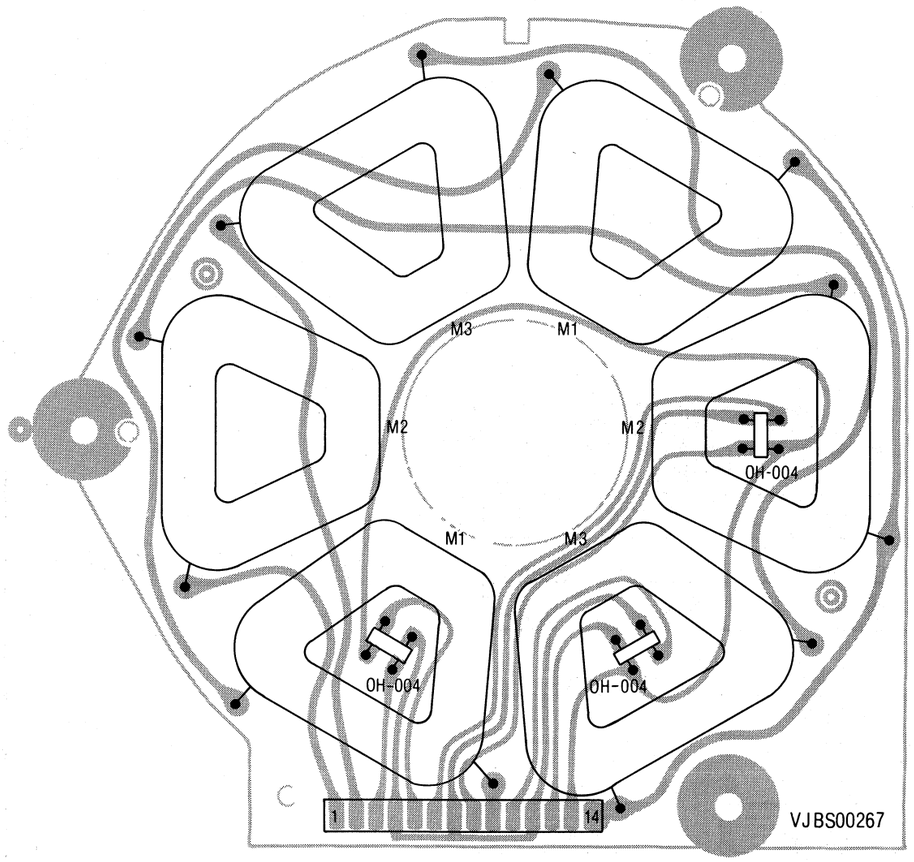

VJBS00288

HER SEMICONDUCTOR DEVICES ARE
EFORE REQUIRE THE SPECIAL
THE "ELECTROSTATICALLY SENSITIVE
MANUAL.

## OR C.B.A. VEPS00269A



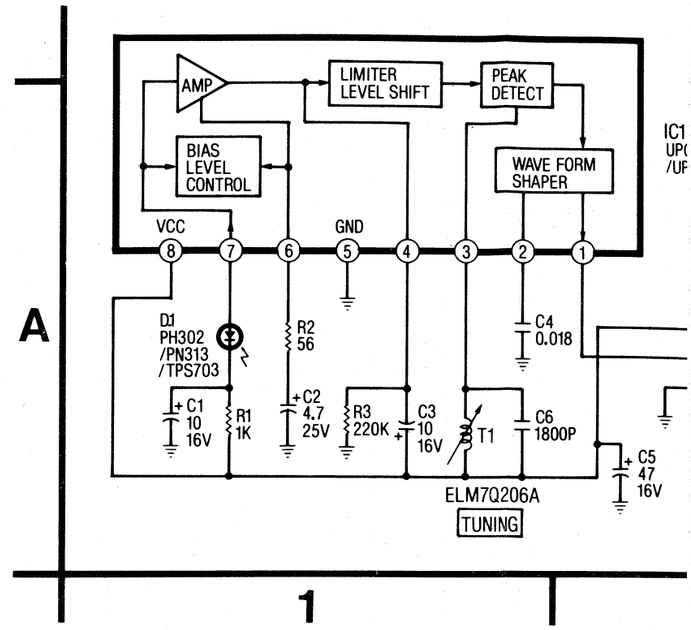

## CAPSTAN STATOR COIL ASS'Y VEMS0058



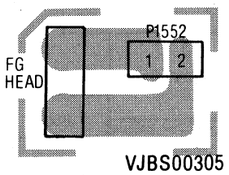

VJBS00267

| | |
|---|---|
| 1 | MAIN COIL 2 |
| 2 | MAIN COIL 3 |
| 3 | H3 – |
| 4 | |
| 5 | H3 + |
| 6 | H1 – |
| 7 | |
| 8 | H1 + |
| 9 | MAIN COIL 1 |
| 10 | H2 – |
| 11 | VH + |
| 12 | H2 + |
| 13 | VH – |
| 14 | |

## IR WIRELESS RECEIVING DETEC
## SCHEMATIC DIAGRAM

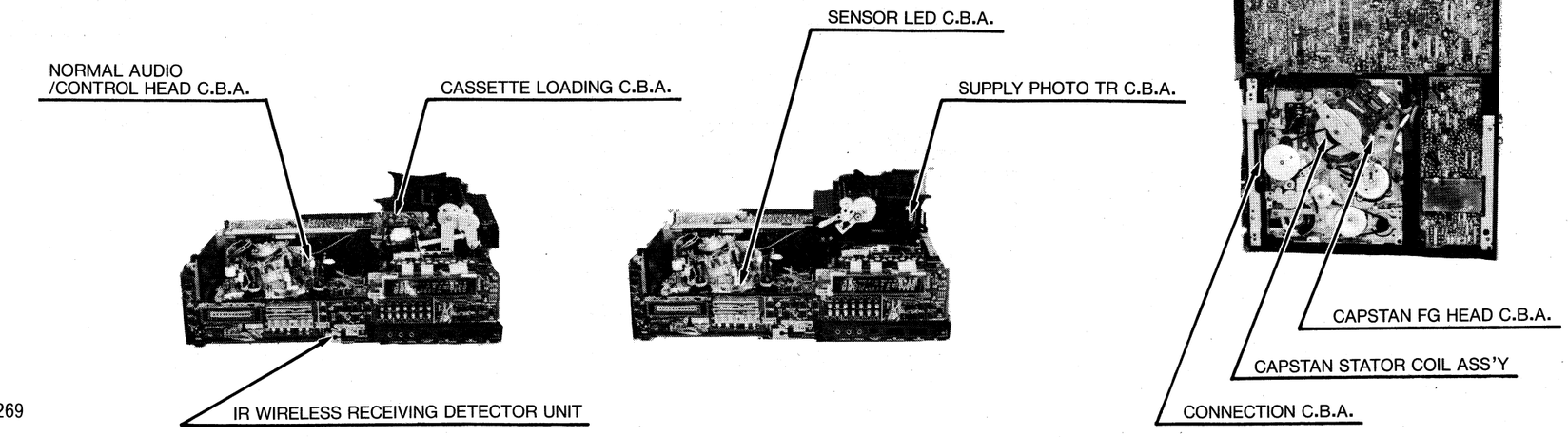



## CAPSTAN FG HEAD C.B.A.



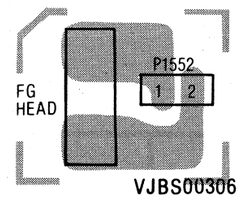

VJBS00305

| P1552 | |
|---|---|
| 1 | CAP Ⓜ FG |
| 2 | GND |




VJBS00269

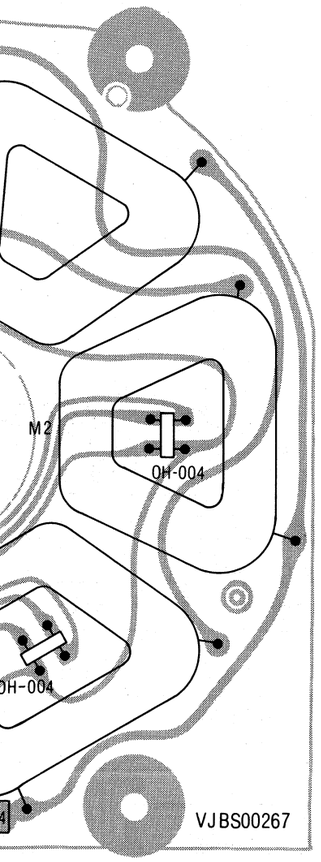
## CAPSTAN FG HEAD C.B.A.



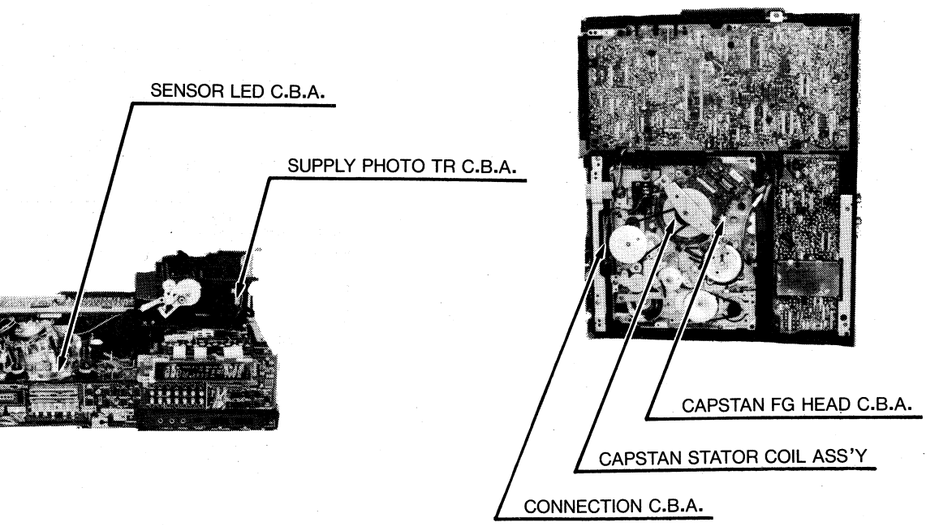

VJBS00306

| P1552 | |
|---|---|
| 1 | CAP Ⓜ FG |
| 2 | GND |

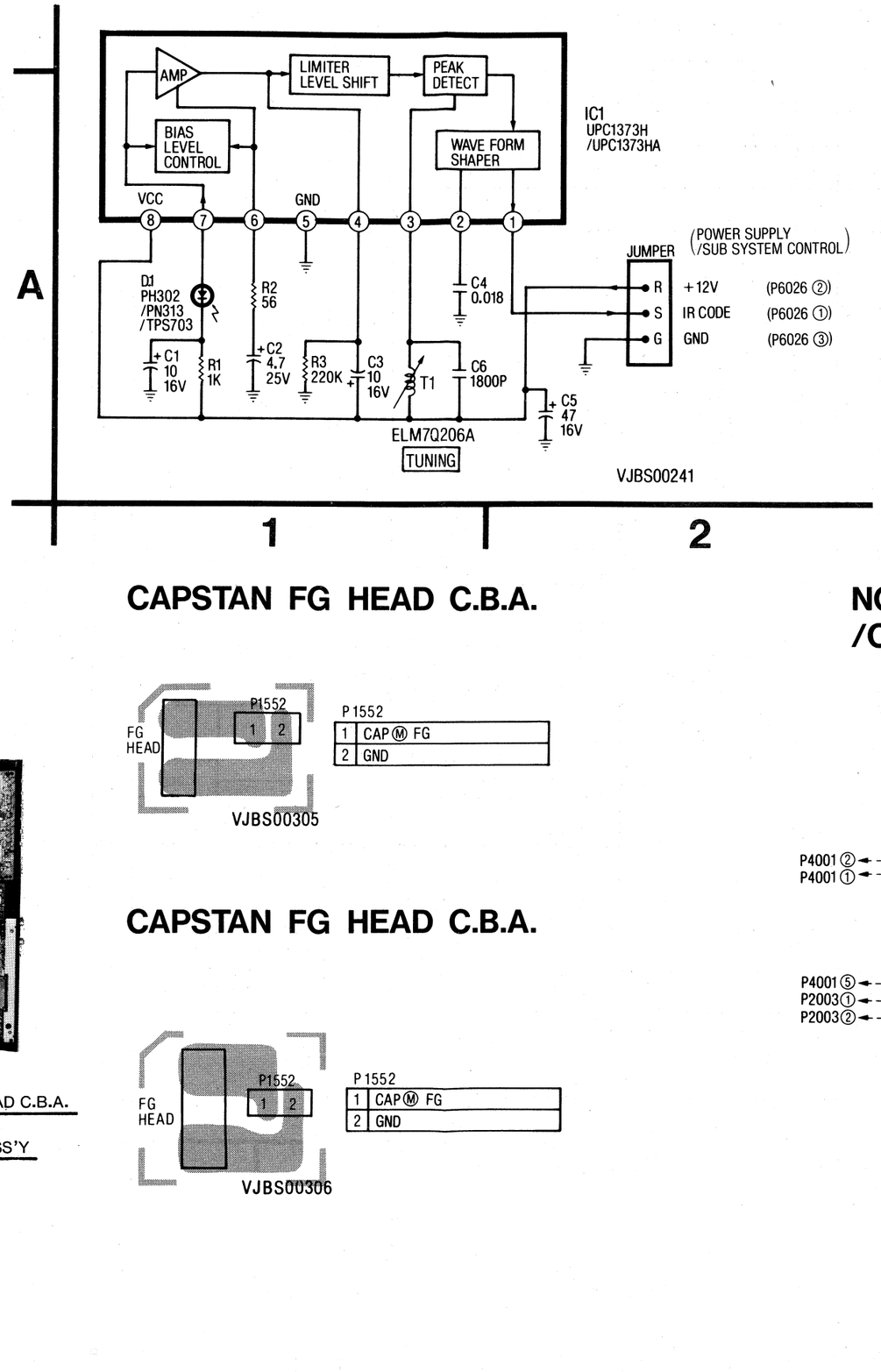
## S'Y VEMS0058



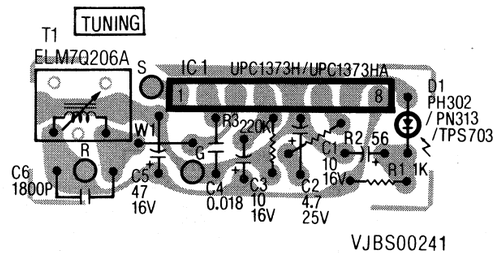

| | |
|---|---|
| 1 | MAIN COIL 2 |
| 2 | MAIN COIL 3 |
| 3 | H3 − |
| 4 | |
| 5 | H3 + |
| 6 | H1 − |
| 7 | |
| 8 | H1 + |
| 9 | MAIN COIL 1 |
| 10 | H2 − |
| 11 | VH + |
| 12 | H2 + |
| 13 | VH − |
| 14 | |




## IR WIRELESS RECEIVING DETECTOR SCHEMATIC DIAGRAM




## IR WIRELESS RECEIVING DETECTOR UNIT VEQS0276




JUMPER

| | |
|---|---|
| R | +12V |
| S | IR CODE |
| G | GND |

## CAPSTAN FG HEAD C.B.A.




P1552

| | |
|---|---|
| 1 | CAP Ⓜ FG |
| 2 | GND |

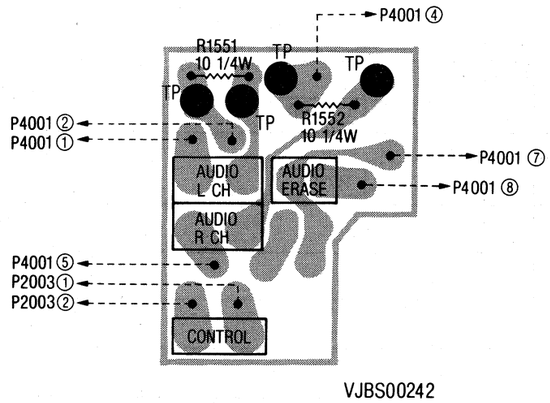
## CAPSTAN FG HEAD C.B.A.



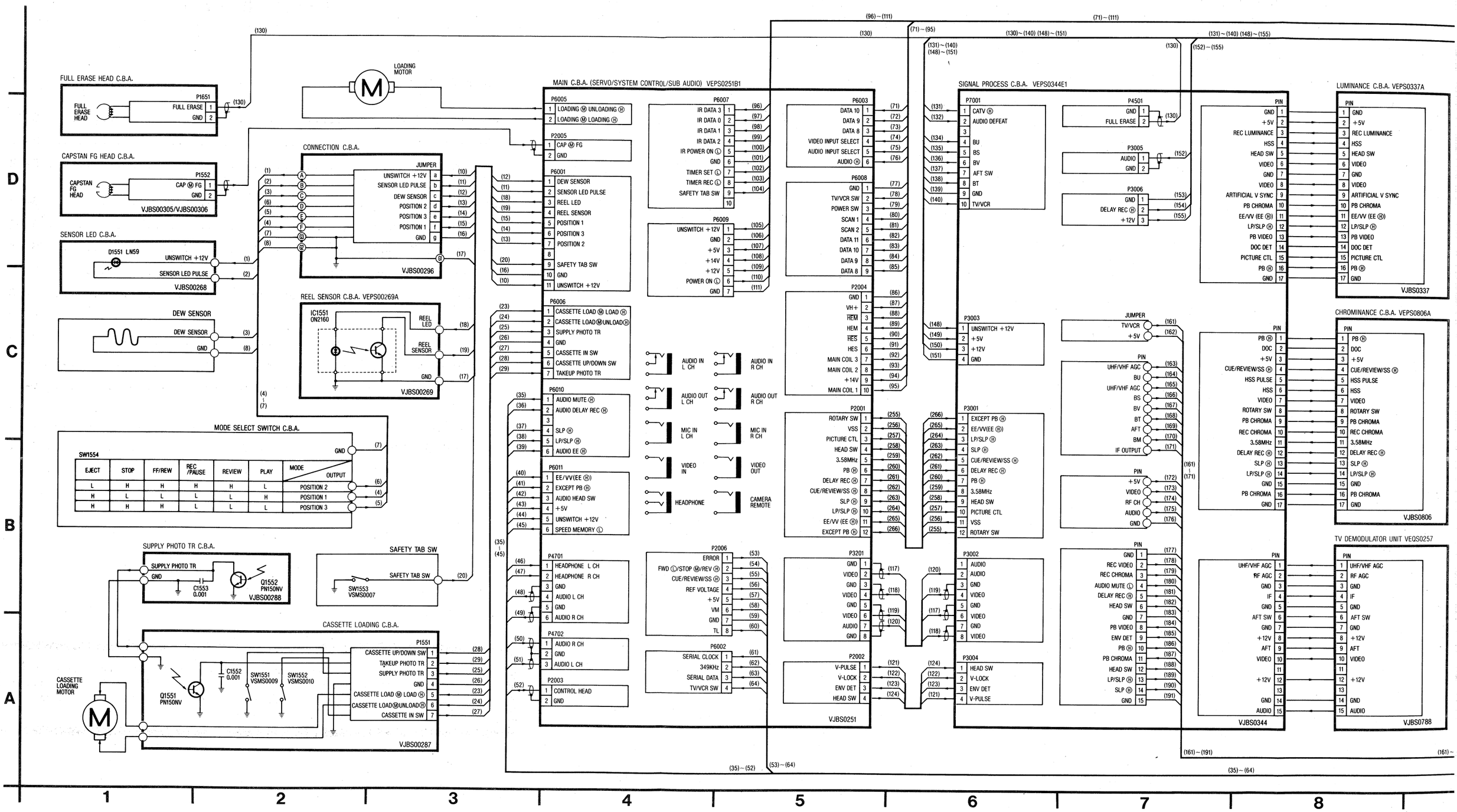

P1552

| | |
|---|---|
| 1 | CAP Ⓜ FG |
| 2 | GND |

## NORMAL AUDIO /CONTROL HEAD C.B.A.

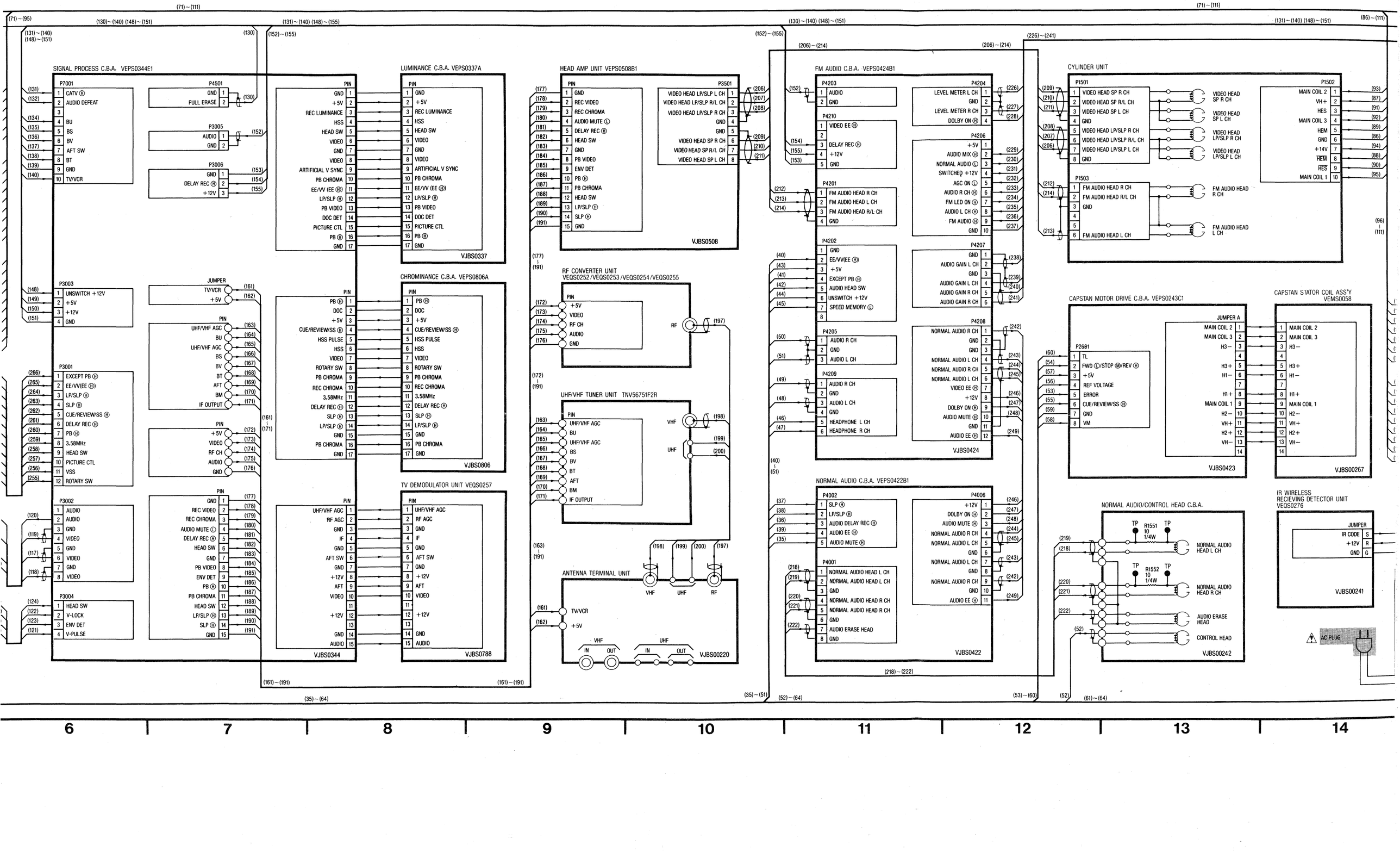


# INTERCONNECTION SCHEMATIC DIAGRAM



IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.




6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14

TICE:
D BY THE SIGN ⚠ HAVE
TICS IMPORTANT FOR SAFETY.
OF THESE COMPONENTS, USE
ARTS.

SPECIAL NOTE:
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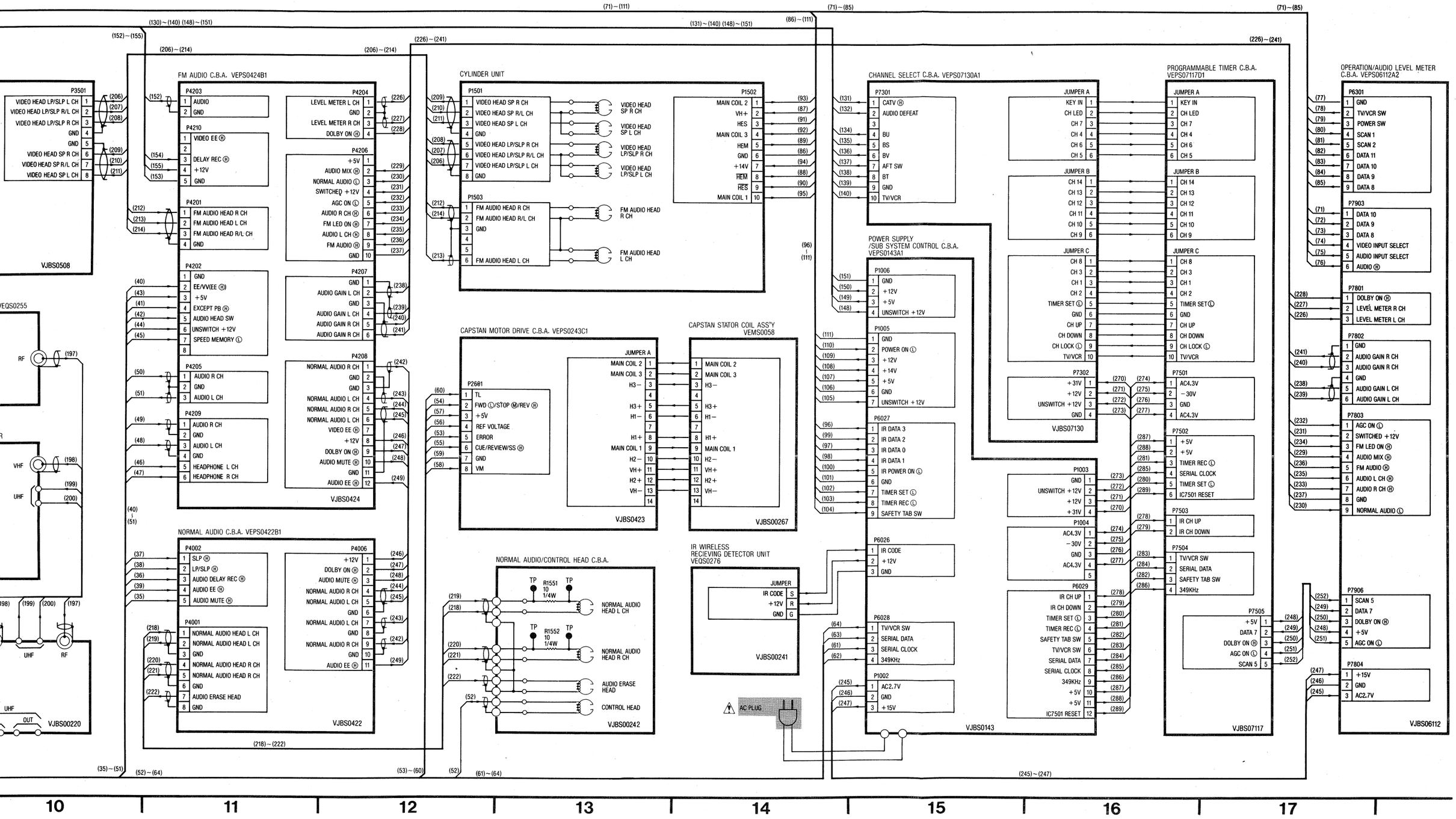

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- ELECTRICAL REPLACEMENT PARTS LIST ..... 5-15

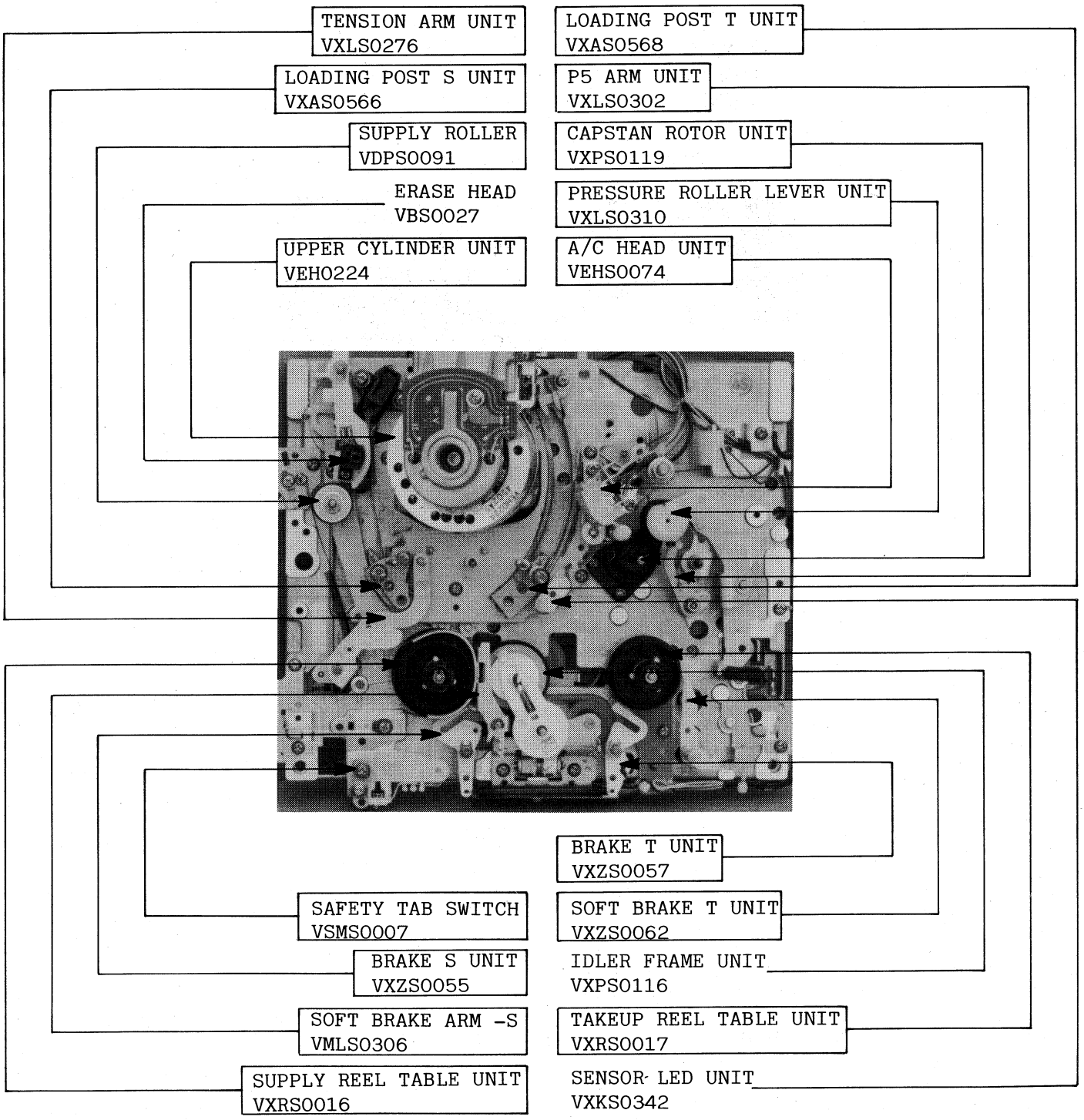

**IMPORTANT SAFETY NOTICE**

There are special components used in this equipment which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

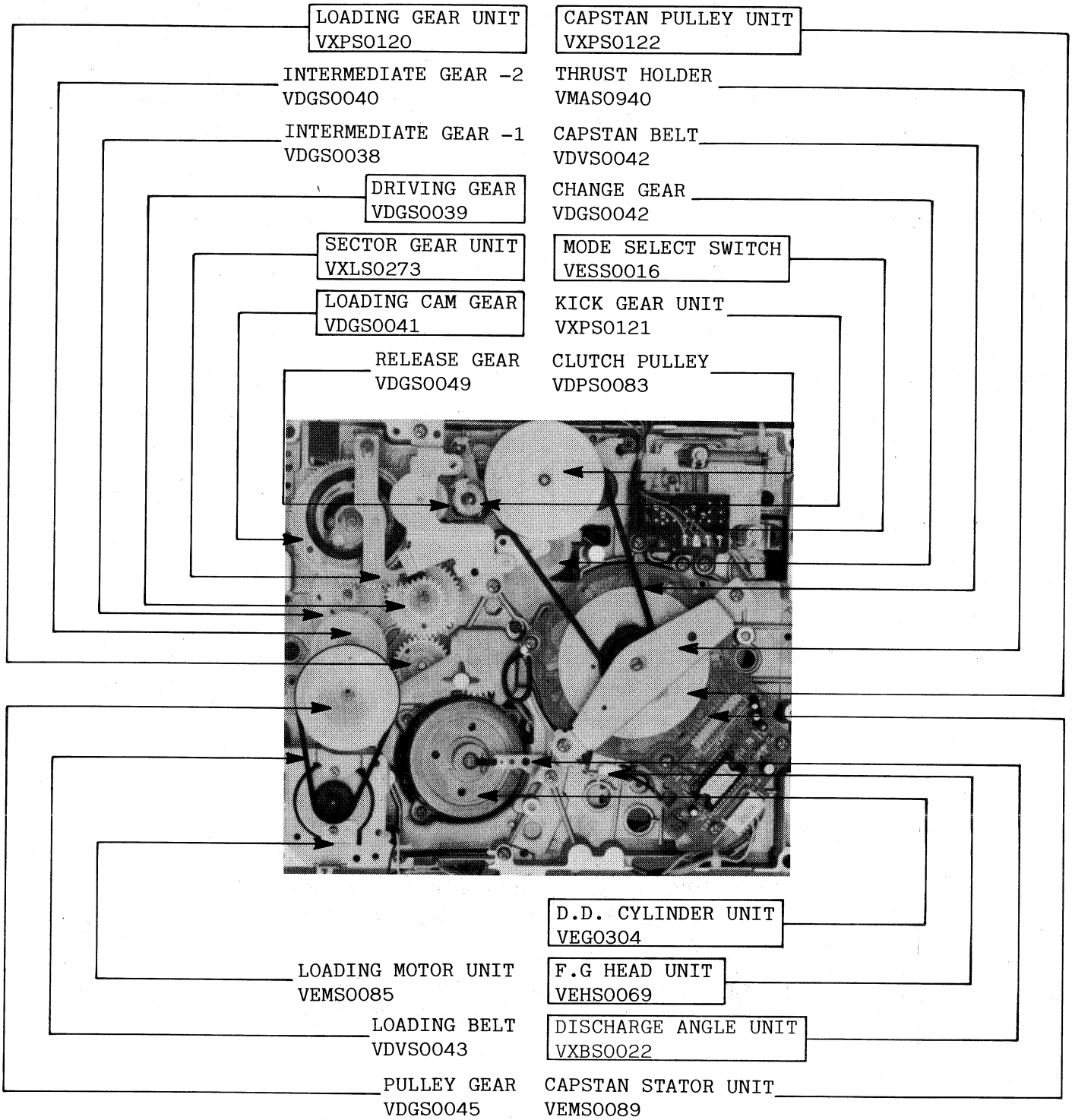
# INNER PARTS LOCATION

## TOP VIEW

Note:
When the mechanical parts surrounded by rectangle are removed or replaced, be sure to perform necessary adjustment or confirmation procedures acoording to the mechanical adjustment procedures section.



## BOTTOM VIEW

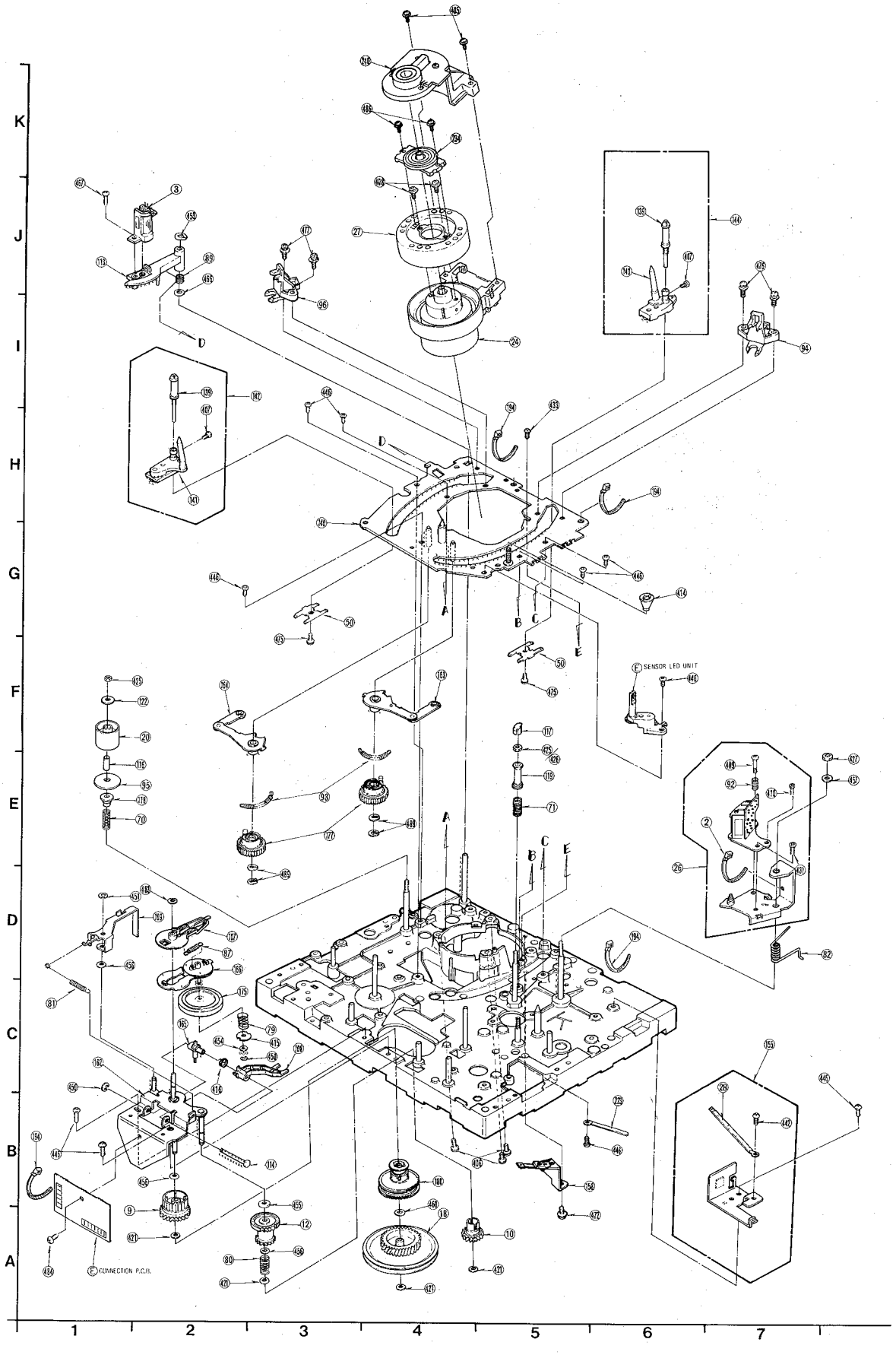



LUBRICATION POINTS

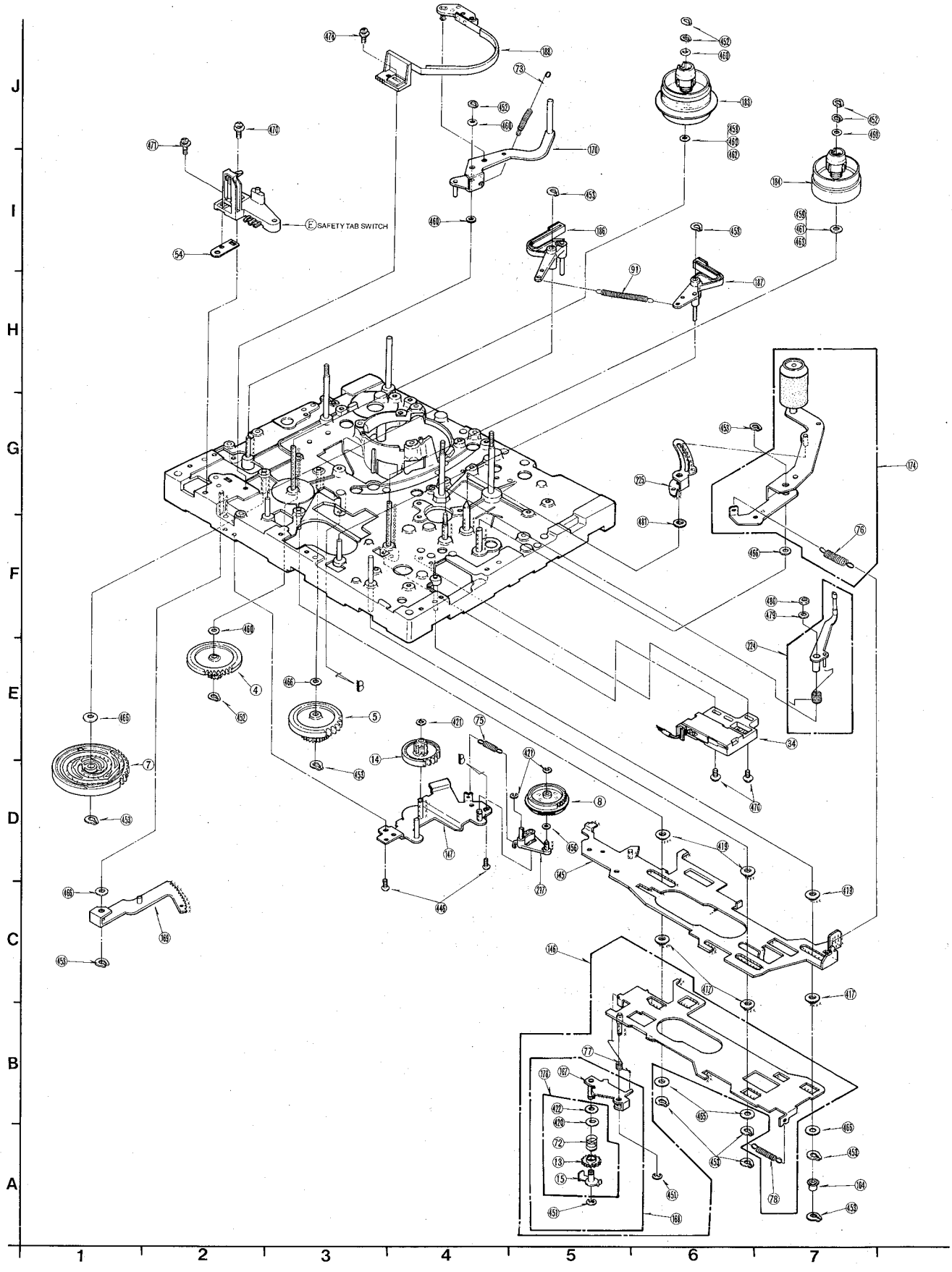
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

| Marks | Kind of Lubricant | Availability | Part Number |
|---|---|---|---|
| XXX | Molytone Grease | Available From Factory | MOR265 |
| OOO | Spindle Oil | Purchase From Local Supplier | ..... |
| ΔΔΔ | Gummed Adhesive | Purchase From Local Supplier | ..... |

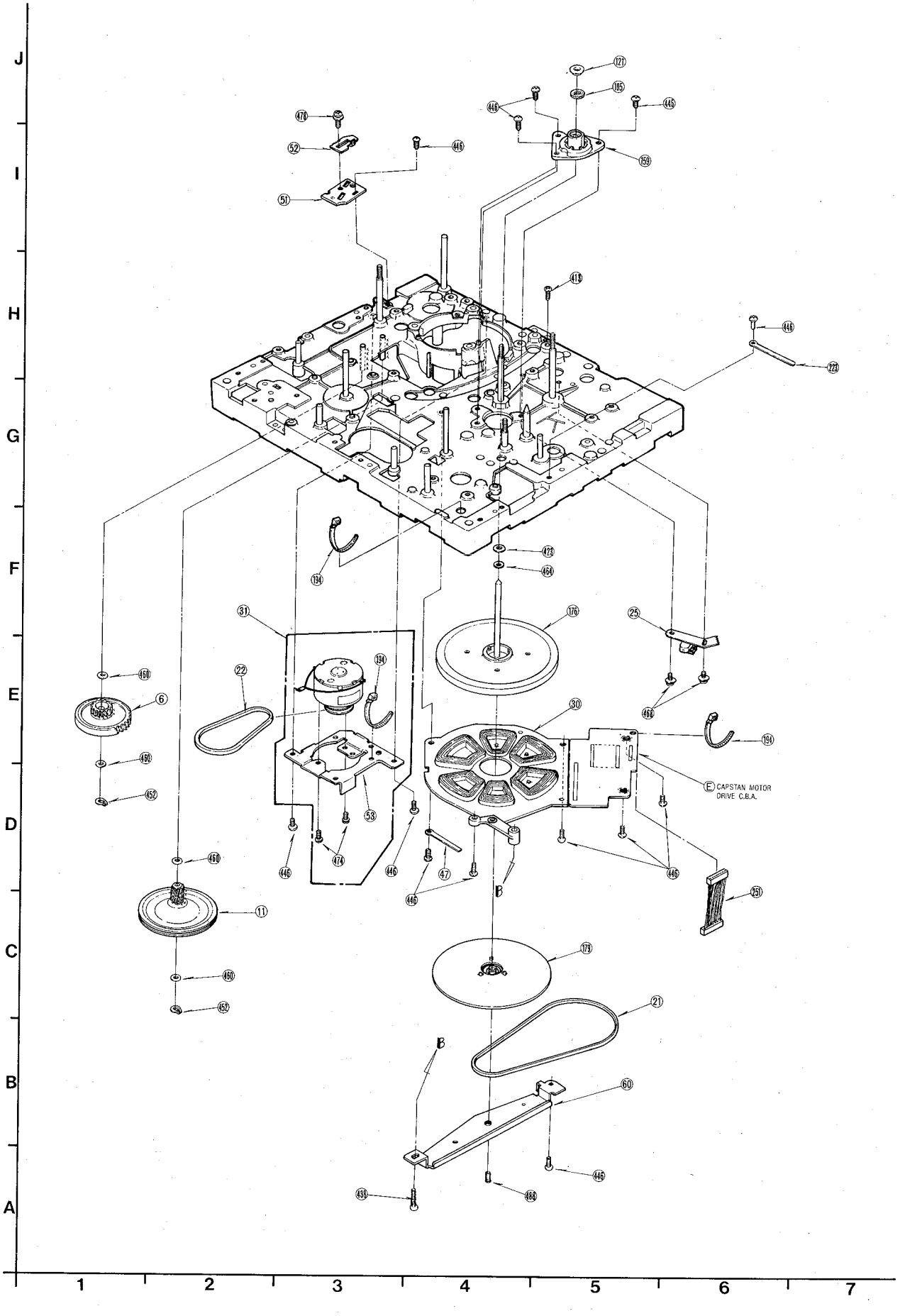
# EXPLODED VIEWS ❶ *Transport Section*



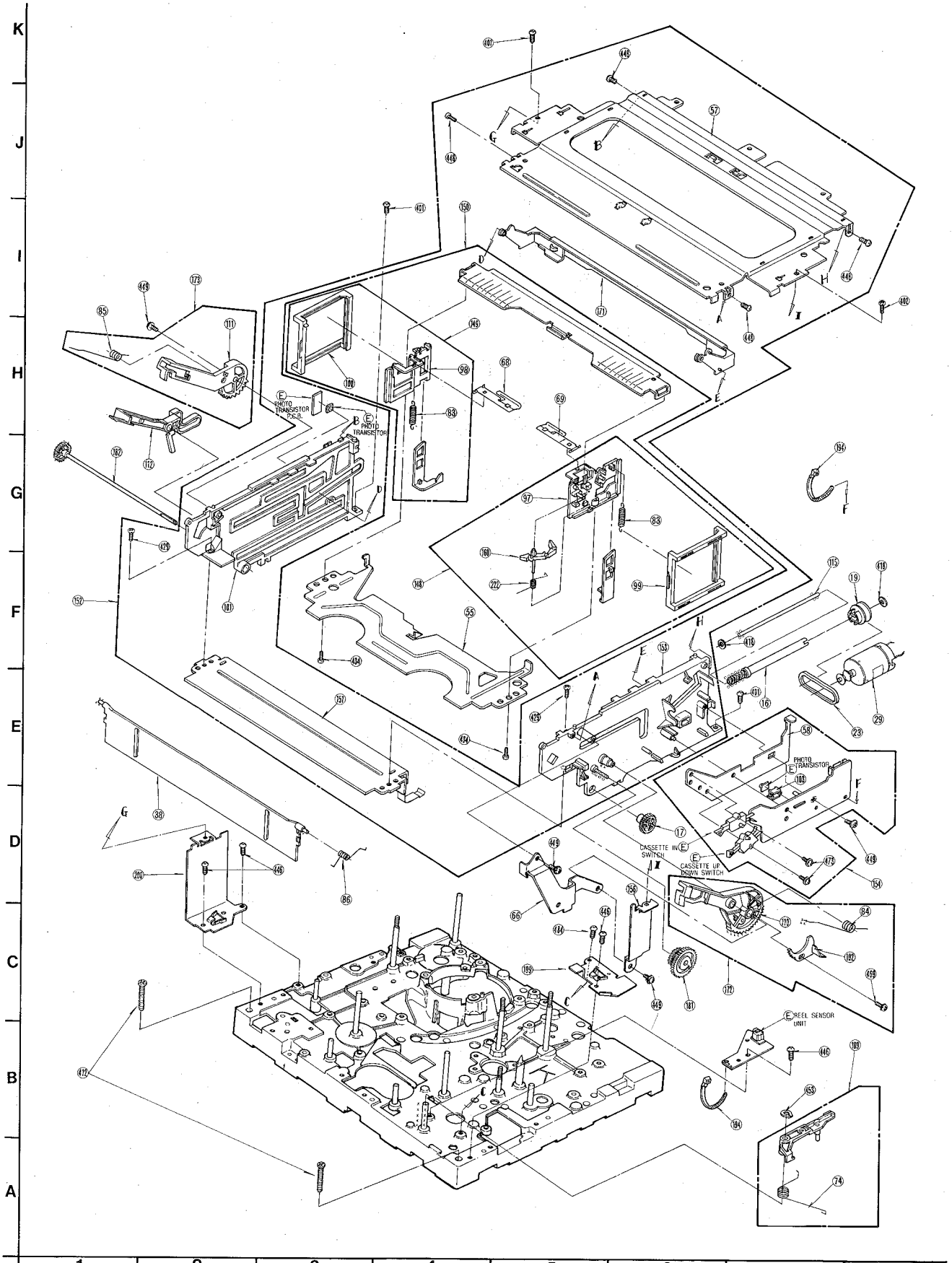
# ❷ *Moving Mechanism Section-(1)*



# ❸ Moving Mechanism Section-(2)

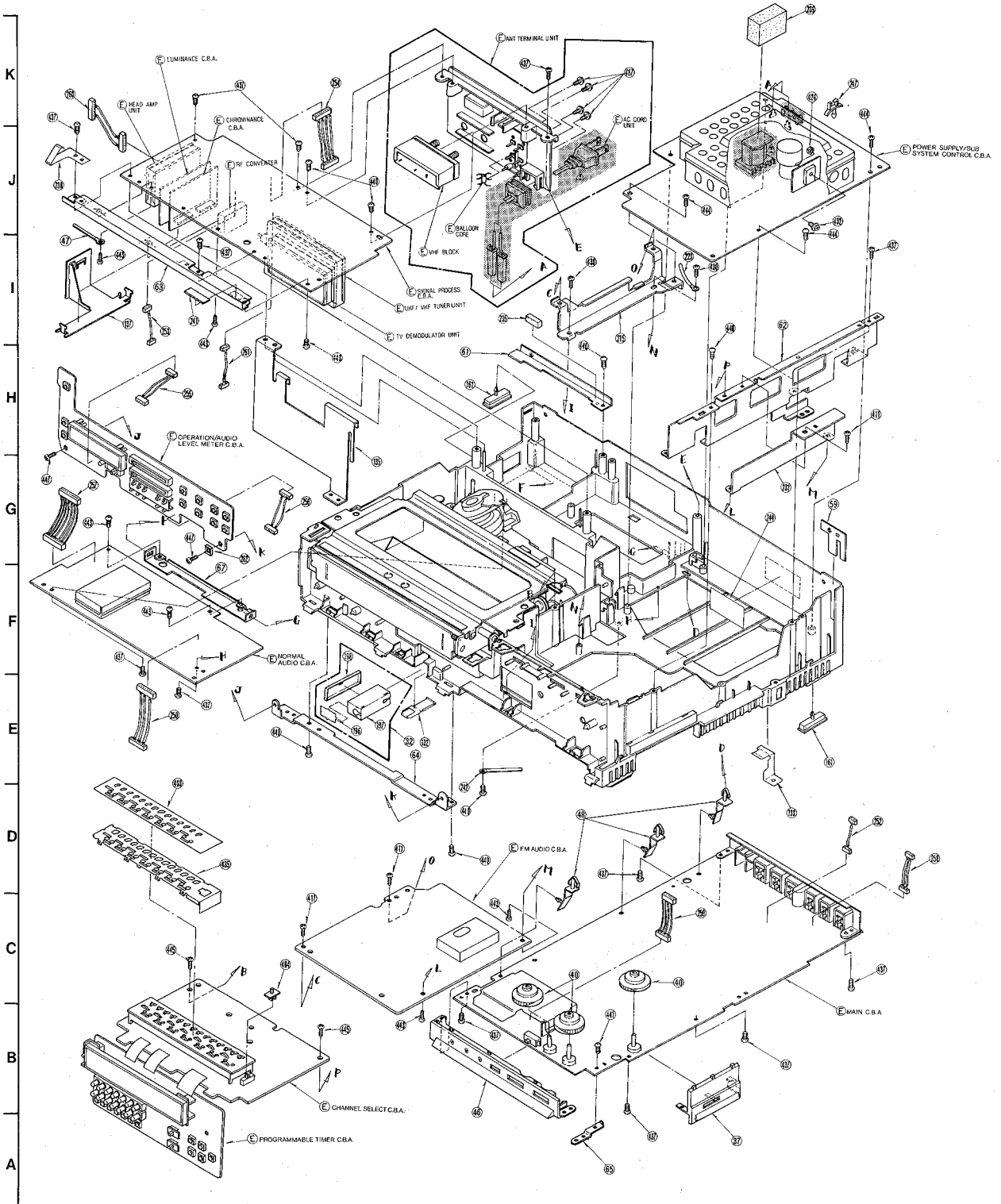


# ❹ *Cassette Up Mechanism Section*

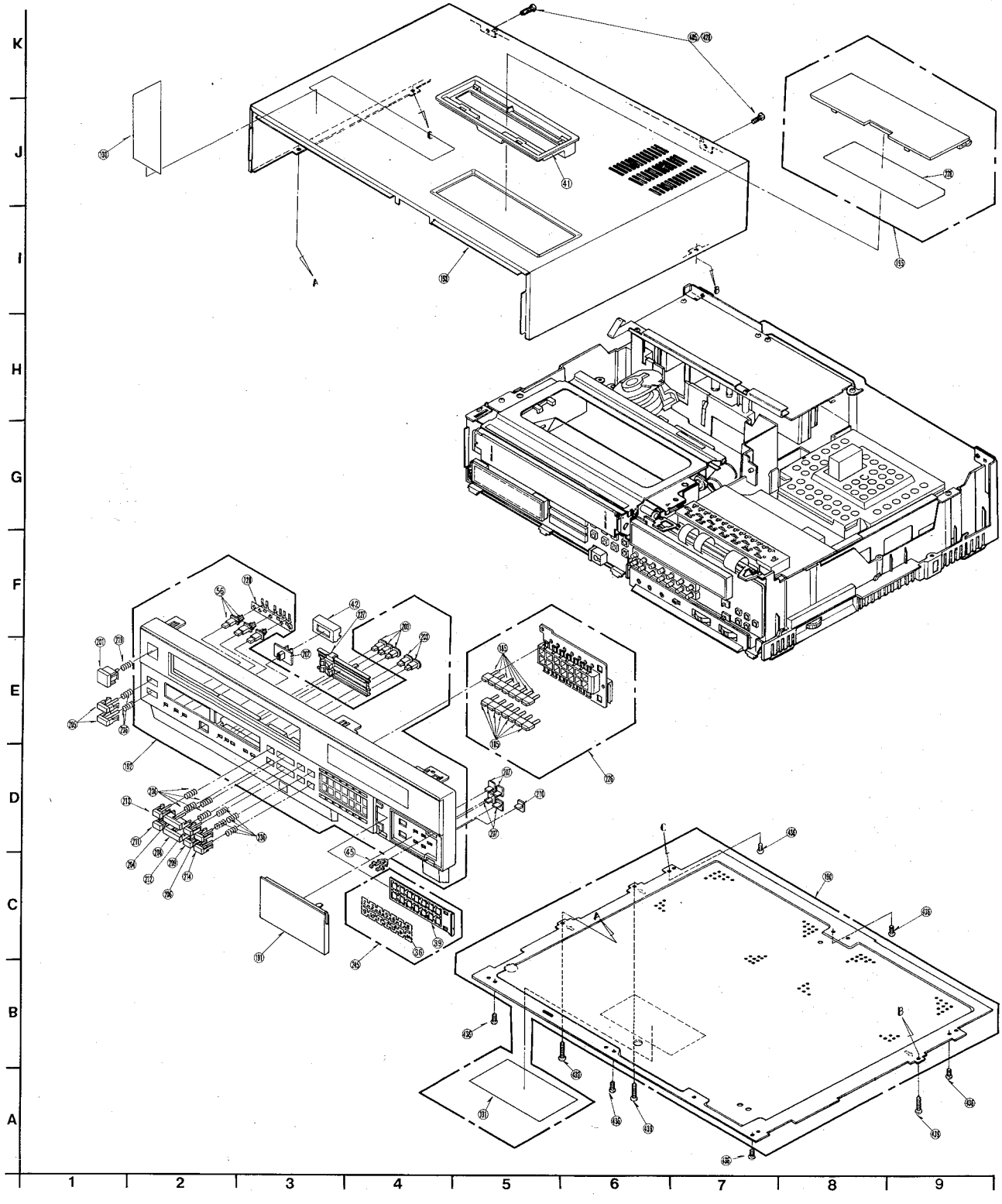


# ❺ *Chassis Frame & Tuner Parts Section*

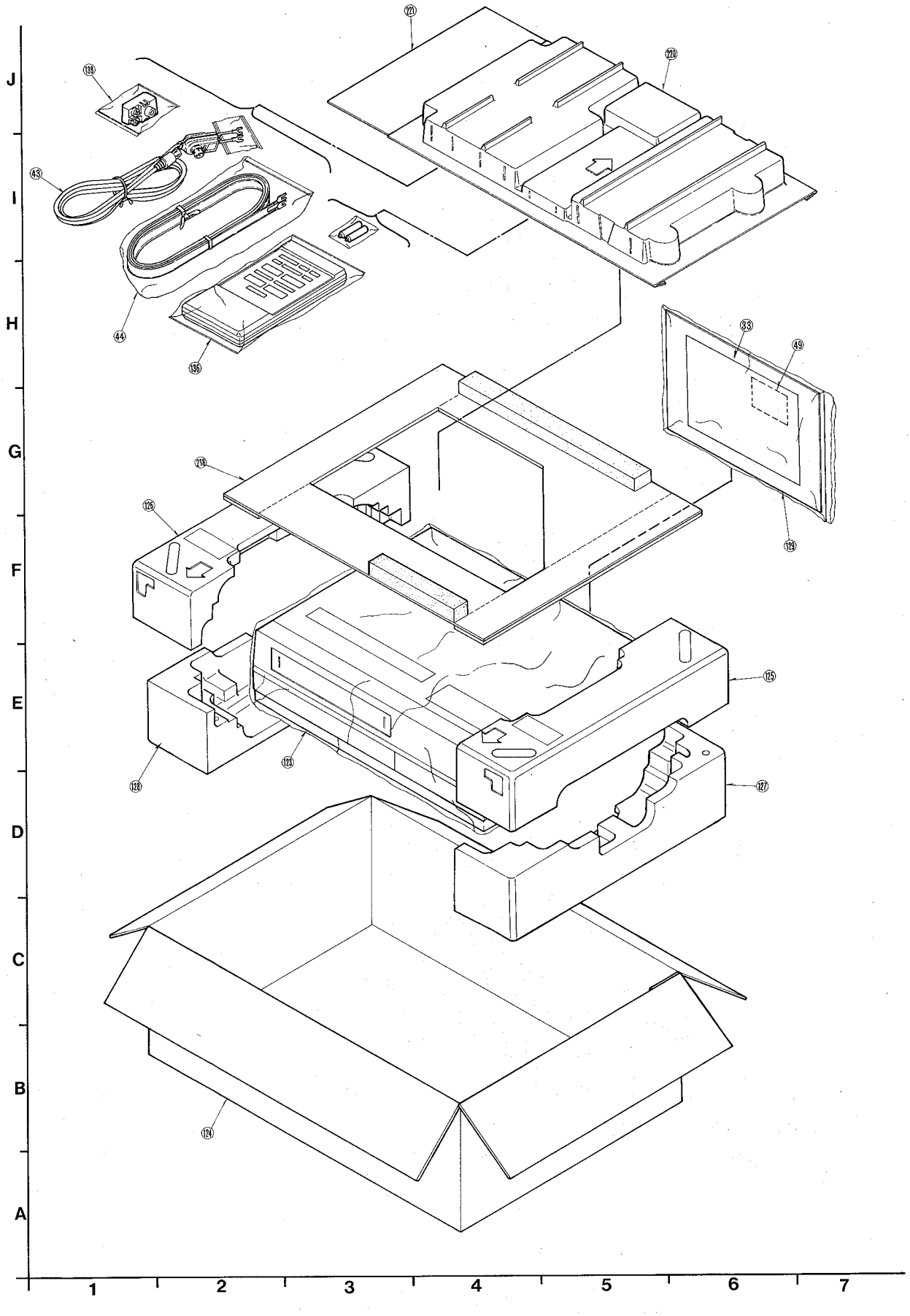
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



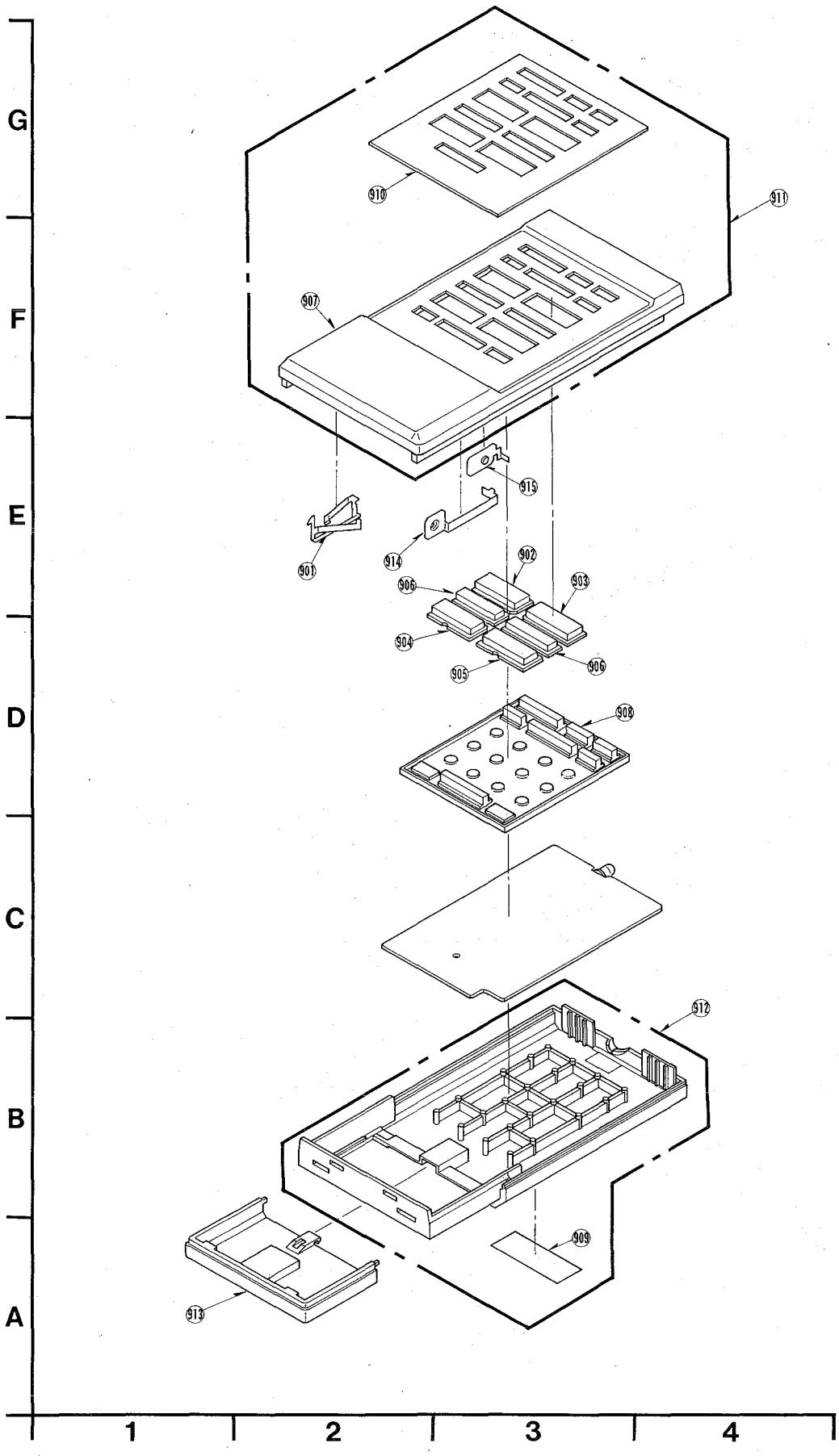
# ❻ Casing Parts Section



# ❼ Packing Parts & Accessories Section



# ❽ IR Wireless Transmitter Unit Section



# MECHANICAL REPLACEMENT PARTS LIST

***Model No. PV-1631M***

Note: Be sure to make your orders of replacement parts according to this list.

| Item No. | Drawing No. | Description | Pcs/ Set | Part No. | Remark |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | 1 | FASTENER | 1 | TYB-23M | |
| 3 | 1 | ERASE HEAD | 1 | VBS0027 | |
| 4 | 2 | INTERMEDIATE GEAR -1 | 1 | VDGS0038 | |
| 5 | 2 | DRIVING GEAR | 1 | VDGS0039 | |
| | | | | | |
| 6 | 3 | INTERMEDIATE GEAR -2 | 1 | VDGS0040 | |
| 7 | 2 | LOADING CAM GEAR | 1 | VDGS0041 | |
| 8 | 2 | CHANGE GEAR | 1 | VDGS0042 | |
| 9 | 1 | IDLER GEAR | 1 | VDGS0043 | |
| 10 | 1 | INTERMEDIATE GEAR -A | 1 | VDGS0044 | |
| | | | | | |
| 11 | 3 | PULLEY GEAR | 1 | VDGS0045 | |
| 12 | 1 | INTERMEDIATE GEAR -B | 1 | VDGS0046 | |
| 13 | 2 | KICK GEAR -1 | 1 | VDGS0048 | |
| 14 | 2 | RELEASE GEAR | 1 | VDGS0049 | |
| 15 | 2 | KICK GEAR -2 | 1 | VDGS0050 | |
| | | | | | |
| 16 | 4 | WORM | 1 | VDGS0051 | |
| 17 | 4 | MAIN SHAFT GEAR -R | 1 | VDGS0054 | |
| 18 | 1 | CLUTCH PULLEY | 1 | VDPS0083 | |
| 19 | 4 | WORM PULLEY | 1 | VDPS0088 | |
| 20 | 1 | SUPPLY ROLLER | 1 | VDPS0091 | |
| | | | | | |
| 21 | 3 | CAPSTAN BELT | 1 | VDVS0042 | |
| 22 | 3 | LOADING BELT | 1 | VDVS0043 | |
| 23 | 4 | LOADING BELT | 1 | VDVS0044 | |
| 24 | 1 | D.D CYLINDER UNIT | 1 | VEG0304 | |
| 25 | 3 | F.G HEAD UNIT | 1 | VEHS0068 | |
| | | | | OR VEHS0069 | |
| | | | | | |
| 26 | 1 | A/C HEAD UNIT | 1 | VEHS0074 | |
| 27 | 1 | UPPER CYLINDER UNIT | 1 | VEH0224 | |
| 28 | 1 | LUG ASS'Y | 1 | VEKS1794 | |
| 29 | 4 | CASSETTE LOADING MOTOR UNIT | 1 | VEMS0088 | |
| 30 | 3 | CAPSTAN STATOR UNIT | 1 | VEMS0089 | |
| | | | | | |
| 31 | 3 | LOADING MOTOR UNIT | 1 | VEMS0085 | |
| 32 | 5 | IR WIRELESS RECEIVING DETECTOR | 1 | VEQS0276 | |
| | | UNIT | | | |
| 33 | 7 | UHF CHANNEL FILM | 1 | VGKS0683 | |
| 34 | 2 | MODE SELECT SWITCH | 1 | VESS0016 | |
| 35 | | | | | |
| | | | | | |
| 36 | 6 | VHF CHANNEL FILM | 1 | VGKS0550 | |
| 37 | 5 | TRACKING V.R PANEL | 1 | VGPS0716 | |
| 38 | 4 | BRIND PANEL | 1 | VGPS0937 | |
| 39 | 6 | FILM HOLDER | 1 | VGQS0242 | |
| 40 | 5 | TRACKING KNOB | 3 | VGTS0135 | |
| | | | | | |
| 41 | 6 | TUNING DOOR DECORATION | 1 | VGPS0928 | |
| 42 | 6 | POWER SELECT SWITCH KNOB PIECE | 1 | VGQS0363 | |
| 43 | 7 | VHF CONNECTING CABLE | 1 | VSQS0215 | |
| 44 | 7 | TWIN LEAD CONNECTOR | 1 | VJA0102 | |
| 45 | 6 | DOOR CLAMPER | 1 | VGQS0374 | |
| | | | | | |
| 46 | 5 | TRACKING PANEL | 1 | VJJS0067 | |
| 47 | 3,5 | CLAMPER | 2 | VJR3 | |
| 48 | 5 | HINGE | 3 | VKCS0009 | |
| 49 | 7 | V -HOLD ADJ. TOOL | 1 | VXKS0365 | |
| 50 | 1 | SHAFT HOLDER PLATE | 2 | VMAS0545 | |
| | | | | | |
| 51 | 3 | TENSION REGULATOR PLATE | 1 | VMAS0875 | |
| 52 | 3 | TENSION ANGLE | 1 | VMAS0876 | |
| 53 | 3 | LOADING MOTOR BRACKET | 1 | VMAS0877 | |

| Item No. | Drawing No. | Description | Pcs/ Set | Part No. | Remark |
|---|---|---|---|---|---|
| 54 | 2 | GROUNDING PLATE | 1 | VMAS0883 | |
| 55 | 4 | CASSETTE HOLDER | 1 | VMAS0898 | |
| | | | | | |
| 56 | 6 | RESET BUTTON | 3 | VGUS0738 | |
| 57 | 4 | CASSETTE COMPARTMENT TOP PLATE | 1 | VXAS0676 | |
| 58 | 4 | SWITCH BRACKET | 1 | VMAS0906 | |
| 59 | 5 | TOP COVER ANGLE -R | 1 | VMAS0932 | |
| 60 | 3 | THRUST HOLDER | 1 | VMAS0940 | |
| | | | | | |
| 61 | 5 | TOP COVER SUPPORT ANGLE | 1 | VMAS0951 | |
| 62 | 5 | P.B ANGLE | 1 | VMAS1058 | |
| 63 | 5 | SIGNAL PROCESS C.B.A ANGLE | 1 | VMAS0953 | |
| 64 | 5 | FRONT FRAME SUPPORT ANGLE | 1 | VMAS0954 | |
| 65 | 5 | GROUNDING ANGLE | 1 | VMAS0955 | |
| | | | | | |
| 66 | 4 | WORM WHEEL STOPPER | 1 | VMAS0986 | |
| 67 | 5 | AUDIO C.B.A ANGLE | 1 | VMAS1007 | |
| 68 | 4 | CASSETTE HOLDER SPRING-L | 1 | VMAS1014 | |
| 69 | 4 | CASSETTE HOLDER SPRING-R | 1 | VMAS1015 | |
| 70 | 1 | SUPPLY INERTIA SPRING | 1 | VMBS0071 | |
| | | | | | |
| 71 | 1 | POST SPRING -P,4 | 1 | VMBS0288 | |
| 72 | 2 | KICK SPRING | 1 | VMBS0330 | |
| 73 | 2 | TENSION SPRING | 1 | VMBS0331 | |
| 74 | 4 | SOFT BRAKE SPRING | 1 | VMBS0332 | |
| 75 | 2 | SELECT GEAR LEVER SPRING | 1 | VMBS0333 | |
| | | | | | |
| 76 | 2 | PRESSURE ROLLER SPRING | 1 | VMBS0334 | |
| 77 | 2 | KICK LEVER SPRING | 1 | VMBS0336 | |
| 78 | 2 | SUB LEVER SPRING | 1 | VMBS0337 | |
| 79 | 1 | IDLER ARM SPRING | 1 | VMBS0339 | |
| 80 | 1 | ADJUST SPRING | 1 | VMBS0425 | |
| | | | | | |
| 81 | 1 | SOFT BRAKE SPRING -S | 1 | VMBS0341 | |
| 82 | 1 | A/C HEAD SPRING | 1 | VMBS0342 | |
| 83 | 4 | CASSETTE HOLDER GUIDE SPRING | 2 | VMBS0345 | |
| 84 | 4 | WIPER GEAR SPRING | 1 | VMBS0348 | |
| 85 | 4 | WIPER SPRING -L | 1 | VMBS0349 | |
| | | | | | |
| 86 | 4 | BLIND SPRING | 1 | VMBS0350 | |
| 87 | 1 | IDLER SPRING | 1 | VMBS0335 | |
| 88 | | | | | |
| 89 | 1 | ERASE HEAD LEVER SPRING | 1 | VMBS0373 | |
| 90 | | | | | |
| | | | | | |
| 91 | 2 | BRAKE ARM SPRING | 1 | VMBS0409 | |
| 92 | 1 | ADJUST SPRING | 1 | VMB0404 | |
| 93 | 1 | LOADING SPRING | 2 | VMB0669 | |
| 94 | 1 | POST STOPPER | 1 | VMDS0031 | |
| 95 | 1 | INERTIA ROLLER LIMITER | 1 | VMDS0063 | |
| | | | | | |
| 96 | 1 | POST STOPPER | 1 | VMDS0199 | |
| 97 | 4 | CASSETTE HOLDER GUIDE -R | 1 | VMDS0203 | |
| 98 | 4 | CASSETTE HOLDER GUIDE -L | 1 | VMDS0204 | |
| 99 | 4 | SLIDE -R | 1 | VMDS0205 | |
| 100 | 4 | SLIDE -L | 1 | VMDS0206 | |
| | | | | | |
| 101 | 4 | SIDE PLATE -L | 1 | VMDS0208 | |
| 102 | 4 | SWITCH CAM | 1 | VMDS0209 | |
| 103 | 4 | SWITCH PIECE | 1 | VMDS0236 | |
| 104 | 2 | SUB LEVER CUSHION | 1 | VMDS0249 | |
| 105 | 3 | OIL POOL | 1 | VMD0104 | |
| | | | | | |
| 106 | | | | | |
| 107 | 1 | IDLER ARM -A | 1 | VMLS0303 | |
| 108 | 1 | CHANGE LEVER -B | 1 | VMLS0305 | |
| 109 | 1 | SOFT BRAKE ARM -S | 1 | VMLS0306 | |
| 110 | 4 | WIPER GEAR -R | 1 | VMLS0320 | |
| | | | | | |
| 111 | 4 | WIPER GEAR -L | 1 | VMLS0321 | |

| Item No. | Drawing No. | Description | Pcs/ Set | Part No. | Remark |
|---|---|---|---|---|---|
| 112 | 4 | CASSETTE COMPARTMENT OPENER | 1 | VMLS0322 | |
| | | LEVER | | | |
| 113 | 1 | ERASE HEAD LEVER | 1 | VMLS0350 | |
| 114 | 1 | LEVER SHAFT | 1 | VMSS0381 | |
| 115 | 4 | WORM SHAFT | 1 | VMSS0394 | |
| | | | | | |
| 116 | 1 | COLLAR | 1 | VMXS0035 | |
| 117 | 1 | POST CAP -P.4 | 1 | VMXS0129 | |
| 118 | 1 | LIMITER SUPPORTER | 1 | VMXS0321 | |
| 119 | 1 | SLEEVE | 1 | VMXS0370 | |
| | | | | OR VMXS0372 | |
| 120 | 6 | TIMER BUTTON RETURN SPRING | 1 | VMBS0399 | |
| | | | | | |
| 121 | 3 | OIL SEAL | 1 | VMX0251 | |
| 122 | 1 | INERTIA ROLLER UPPER LIMITER | 1 | VNWS0002 | |
| 123 | 7 | POLYETHYLENE BAG | 1 | VPFS0029 | |
| 124 | 7 | PACKING CASE | 1 | VPGS1081 | |
| 125 | 7 | RIGHT CUSHION -TOP | 1 | VPNS0157 | |
| | | | | | |
| 126 | 7 | LEFT CUSHION -TOP | 1 | VPNS0158 | |
| 127 | 7 | RIGHT CUSHION -BOTTOM | 1 | VPNS0159 | |
| 128 | 7 | LEFT CUSHION -BOTTOM | 1 | VPNS0160 | |
| 129 | 7 | FAN BAG | 1 | VQFS0708 | |
| 130 | 6 | STICKER | 1 | VQLS1110 | |
| | | | | | |
| 131 | 6 | BOTTOM CAUTION LABEL | 1 | VQLS1051 | |
| 132 | 5 | GROUNDING PLATE | 1 | VSCS0476 | |
| 133 | 5 | GROUNDING ANGLE | 1 | VSCS0477 | |
| 134 | | | | | |
| 135 | 5 | GROUNDING PLATE | 1 | VSCS0528 | |
| | | | | | |
| 136 | 7 | IR WIRELESS TRANSMITTER UNIT | 1 | VSQS0262 | |
| 137 | 5 | TV DEMODULATOR UNIT SUPPORT | 1 | VMAS1035 | |
| | | ANGLE | | | |
| 138 | 7 | VHF ANTENNA ADAPTOR | 1 | VSQ0057 | |
| 139 | 1 | ROLLER POST UNIT | 2 | VXAS0562 | |
| 140 | 1 | LOADING BASE 1 UNIT | 1 | VXAS0564 | |
| | | | | | |
| 141 | 1 | SHAFT HOLDER BLOCK S UNIT | 1 | VXAS0565 | |
| 142 | 1 | LOADING POST S UNIT | 1 | VXAS0566 | |
| 143 | 1 | SHAFT HOLDER BLOCK T UNIT | 1 | VXAS0567 | |
| 144 | 1 | LOADING POST T UNIT | 1 | VXAS0568 | |
| 145 | 2 | MAIN LEVER UNIT | 1 | VXAS0570 | |
| | | | | | |
| 146 | 2 | SUB LEVER UNIT | 1 | VXAS0572 | |
| 147 | 2 | KICK BASE UNIT | 1 | VXAS0705 | |
| 148 | 4 | CASSETTE HOLDER GUIDE R UNIT | 1 | VXAS0608 | |
| 149 | 4 | CASSETTE HOLDER GUIDE L UNIT | 1 | VXAS0609 | |
| 150 | 4 | CASSETTE HOLDER UNIT | 1 | VXAS0610 | |
| | | | | | |
| 151 | 4 | CASSETTE GUIDE I UNIT | 1 | VXAS0614 | |
| 152 | 4 | CASSETTE UP UNIT | 1 | VXAS0685 | |
| 153 | 4 | SIDE PLATE -R | 1 | VXAS0620 | |
| 154 | 4 | SWITCH ANGLE UNIT | 1 | VXAS0625 | |
| 155 | 1 | CASSETTE OPENER ANGLE UNIT | 1 | VXAS0648 | |
| | | | | | |
| 156 | 4 | SUPPORT ANGLE | 1 | VMAS1028 | |
| 157 | | | | | |
| 158 | 1 | DISCHARGE ANGLE UNIT | 1 | VXBS0022 | |
| 159 | 3 | HOUSING | 1 | VXDS0012 | |
| 160 | 4 | RELEASE LEVER | 1 | VMLS0357 | |
| | | | | | |
| 161 | 5 | CUSHION | 2 | VXGS0006 | |
| 162 | 1 | F.F SLIDE LEVER UNIT | 1 | VXKS0339 | |
| 163 | 1 | LOADING ARM R UNIT | 1 | VXLS0200 | |
| 164 | 1 | LOADING ARM L UNIT | 1 | VXLS0201 | |
| 165 | 1 | CHANGE LEVER -A | 1 | VXLS0267 | |
| | | | | | |
| 166 | 1 | IDLER ARM -B | 1 | VXLS0268 | |
| 167 | 2 | ARM LEVER | 1 | VXLS0271 | |

| Item No. | Drawing No. | Description | Pcs/ Set | Part No. | Remark |
|---|---|---|---|---|---|
| 168 | 2 | ARM LEVER UNIT | 1 | VXLS0272 | |
| 169 | 2 | SECTOR GEAR UNIT | 1 | VXLS0273 | |
| 170 | 2 | TENSION ARM UNIT | 1 | VXLS0276 | |
| | | | | | |
| 171 | 4 | CASSETTE OPENER LEVER | 1 | VXLS0295 | |
| 172 | 4 | WIPER GEAR R UNIT | 1 | VXLS0296 | |
| 173 | 4 | WIPER GEAR L UNIT | 1 | VXLS0297 | |
| 174 | 2 | PRESSURE ROLLER LEVER UNIT | 1 | VXLS0310 | |
| 175 | 1 | IDLER FRAME UNIT | 1 | VXPS0116 | |
| | | | | | |
| 176 | 3 | CAPSTAN ROTOR UNIT | 1 | VXPS0119 | |
| 177 | 1 | LOADING GEAR UNIT | 2 | VXPS0120 | |
| 178 | 2 | KICK GEAR UNIT | 1 | VXPS0121 | |
| 179 | 3 | CAPSTAN PULLEY UNIT | 1 | VXPS0122 | |
| 180 | 1 | CLUTCH GEAR UNIT | 1 | VXPS0124 | |
| | | | | | |
| 181 | 4 | WORM WHEEL UNIT | 1 | VXPS0128 | |
| 182 | 4 | MAIN SHAFT | 1 | VXPS0129 | |
| 183 | 2 | SUPPLY REEL TABLE UNIT | 1 | VXRS0016 | |
| 184 | 2 | TAKEUP REEL TABLE UNIT | 1 | VXRS0017 | |
| 185 | 6 | CHANNEL SELECT BUTTON -A | 14 | VGUS0742 | |
| | | | | | |
| 186 | 2 | BRAKE S UNIT | 1 | VXZS0055 | |
| 187 | 2 | BRAKE T UNIT | 1 | VXZS0057 | |
| 188 | 2 | TENSION BAND UNIT | 1 | VXZS0059 | |
| 189 | 4 | SOFT BRAKE T UNIT | 1 | VXZS0062 | |
| 190 | 6 | BOTTOM PANEL UNIT | 1 | VYFS0057 | |
| | | | | | |
| 191 | 6 | TIMER DOOR UNIT | 1 | VYPS2461 | |
| 192 | 6 | FRONT PANEL 1 UNIT | 1 | VYPS2450 | |
| 193 | 6 | TOP COVER UNIT | 1 | VYPS2448 | |
| 194 | 1,3,4 | CLAMPER | 9 | VZFS0006 | |
| 195 | 6 | TUNING DOOR UNIT | 1 | VYPS2446 | |
| | | | | | |
| 196 | 5 | FILTER PLATE | 1 | VGQS0294 | |
| 197 | 5 | SHIELD CASE | 1 | VSCS0309 | |
| 198 | 5 | SHIELD CASE | 1 | VSCS0310 | |
| 199 | 4 | CASSETTE ANGLE -R | 1 | VMAS0907 | |
| 200 | 4 | CASSETTE ANGLE -L | 1 | VMAS0908 | |
| | | | | | |
| 201 | 6 | EJECT BUTTON | 1 | VGUS1064 | |
| 202 | 6 | POWER SELECT SWITCH KNOB | 1 | VGTS0139 | |
| 203 | 6 | FM AUDIO SELECT BUTTON | 5 | VGUS0964 | |
| 204 | 6 | OPERATION BUTTON -PLAY | 1 | VGUS0956 | |
| 205 | 6 | OPERATION BUTTON -POWER/VCR | 2 | VGUS0728 | |
| | | | | | |
| 206 | 6 | OPERATION BUTTON -RECORD | 1 | VGUS0958 | |
| 207 | 6 | TIMER OPERATION BUTTON | 4 | VGUS1062 | |
| 208 | 6 | OPERATION BUTTON -STOP | 1 | VGUS0957 | |
| 209 | 6 | OPERATION BUTTON -SLOW | 1 | VGUS0960 | |
| 210 | 6 | O.T.R BUTTON | 1 | VGUS0741 | |
| | | | | | |
| 211 | 6 | OPERATION BUTTON -PAUSE | 1 | VGUS0962 | |
| 212 | 6 | OPERATION BUTTON -F.F | 1 | VGUS0961 | |
| 213 | 6 | OPERATION BUTTON -REWIND | 1 | VGUS0963 | |
| 214 | 6 | OPERATION BUTTON -A.DUB | 1 | VGUS0959 | |
| 215 | 5 | FM AUDIO C.B.A ANGLE -A | 1 | VMAS1059 | |
| | | | | | |
| 216 | | | | | |
| 217 | 2 | KICK LEVER 1 UNIT | 1 | VXLS0275 | |
| 218 | 7 | TOP PAD | 1 | VPGS1051 | |
| 219 | 6 | OPERATION BUTTON SPRING | 1 | VMBS0256 | |
| 220 | 7 | ACCESSORY CASE | 1 | VPGS0379 | |
| | | | | | |
| 221 | 7 | ACCESSORY CASE PAD | 1 | VPGS0380 | |
| 222 | 4 | RELEASE LEVER SPRING | 1 | VMBS0418 | |
| 223 | 1,3,5 | CLAMPER | 3 | PEC-034-0 | |
| 224 | 2 | P5 ARM UNIT | 1 | VXLS0302 | |
| 225 | 2 | P5 IDLER LEVER | 1 | VMLS0358 | |
| | | | | | |

| Item No. | Drawing No. | Description | Pcs/ Set | Part No. | Remark |
|---|---|---|---|---|---|
| 226 | 6 | CHANNEL SELECT BUTTON BRACKET | 1 | VYPS2459 | |
| 227 | 6 | REC LEVEL SLIDE CONTROL UNIT | 1 | VYPS2311 | |
| 228 | 6 | TUNING CAUTION LABEL | 1 | VQLS0891 | |
| 229 | | | | | |
| 230 | | | | | |
| | | | | | |
| 231 | 5 | FM AUDIO C.B.A ANGLE -B | 1 | VMAS1060 | |
| 232 | | | | | |
| 233 | | | | | |
| 234 | 1 | RT ROTOR BASE UNIT | 1 | VXA2004 | |
| 235 | 5 | CUSHION | 1 | VMGS0054 | |
| | | | | | |
| 236 | 6 | OPERATION BUTTON SPRING | 10 | VMBS0371 | |
| 237 | | | | | |
| 238 | 5 | GROUNDING ANGLE | 1 | VMAS1051 | |
| 239 | 5 | CUSHION | 1 | VMGS0055 | |
| 240 | 1 | STATOR ANGLE UNIT | 1 | VXA2006 | |
| | | | | | |
| 241 | 5 | CUSHION | 1 | VMGS0036 | |
| 242 | 5 | CLAMPER | 1 | KEX-004 | |
| 243 | | | | | |
| 244 | 5 | FUSE CAUTION LABEL | 1 | VQLS0768 | |
| 245 | 6 | FILM HOLDER UNIT | 1 | VYQS0027 | |
| | | | | | |
| 246 | | | | | |
| 247 | 5 | CLAMPER | 1 | VJF0004 | |
| 248 | | | | | |
| 249 | | | | | |
| 250 | 5 | CONNECTOR ASS'Y | 1 | VEKS1701 | |
| | | | | | |
| 251 | 3 | CONNECTOR ASS'Y | 1 | VEKS1707 | |
| 252 | 5 | CONNECTOR ASS'Y | 1 | VEKS1705 | |
| 253 | 5 | CONNECTOR ASS'Y | 1 | VEKS1719 | |
| 254 | 5 | CONNECTOR ASS'Y | 1 | VEKS1924 | |
| 255 | 5 | CONNECTOR ASS'Y | 1 | VEKS1878 | |
| | | | | | |
| 256 | 5 | CONNECTOR ASS'Y | 1 | VEKS1882 | |
| 257 | 5 | CONNECTOR ASS'Y | 1 | VEKS1885 | |
| 258 | 5 | CONNECTOR ASS'Y | 1 | VEKS1893 | |
| 259 | 5 | CONNECTOR ASS'Y | 1 | VEKS1894 | |
| 260 | 5 | CONNECTOR ASS'Y | 1 | VEKS1933 | |
| | | | | | |
| 261 | 5 | CONNECTOR ASS'Y | 1 | VEKS1964 | |
| 262 | 5 | C.B.A GROUNDING PLATE | 1 | VSCS0594 | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |
| 401 | 4 | TAPPING SCREW 3X10 | 3 | XTV3+10FRS | |
| 402 | 4 | TAPPING SCREW 2.6X6 | 1 | XTV26+6FS | |
| 403 | 5 | TUNING V.R CASE DECORATION | 1 | VGNS0794 | |
| 404 | 5 | SLIDE SWITCH KNOB -B | 1 | VGTS0118 | |
| 405 | 6 | SCREW | 2 | VHDS0011 | |
| | | | | | |
| 406 | 1 | SCREW | 3 | VHDS0016 | |
| 407 | 1 | LOCK SCREW | 2 | VHDS0024 | |
| | | | | OR VHDS0052 | |
| 408 | 1 | SCREW WITH WASHER | 2 | XYNV0027 | |
| 409 | 1 | ADJUST SCREW | 1 | VHDS0041 | |
| 410 | 1 | SCREW | 1 | VHDS0045 | |
| | | | | | |

| Item No. | Drawing No. | Description | Pcs/ Set | Part No. | Remark |
|---|---|---|---|---|---|
| 411 | 5 | TAPPING SCREW 3X6 | 3 | XTV3+6FRS | |
| 412 | 4 | SCREW | 2 | VHDS0061 | |
| 413 | 3 | SCREW | 1 | VHDS0062 | |
| 414 | 1 | ADJUST NUT -3 | 1 | VHNS0019 | |
| | | | | OR VHNS0023 | |
| 415 | 1 | IDLER ANGLE | 1 | VMAS0872 | |
| | | | | | |
| 416 | 1 | CHANGE LEVER SPRING | 1 | VMBS0424 | |
| 417 | 2 | SLIDE WASHER | 3 | VMXS0050 | |
| 418 | 4 | WASHER | 2 | VMXS0098 | |
| 419 | 2 | SLIDE WASHER F | 3 | VMXS0109 | |
| 420 | 2 | WASHER | 1 | VMXS0335 | |
| | | | | | |
| 421 | 1,2 | CUT WASHER | 7 | VMXS0336* | |
| 422 | 2 | CUT WASHER | 1 | VMXS0342* | |
| 423 | 3 | CAPSTAN THRUST WASHER | 1 | VMXO265 | |
| 424 | 5 | M3 NUT | 1 | XNG3 | |
| 425 | 1 | M3 NUT | 2 | XNG3E | |
| | | | | | |
| 426 | 1 | M3 NUT | 1 | XNG3EZU | |
| 427 | 1 | WASHER 5 | 1 | XNG5E | |
| 428 | 6 | BIND SCREW 4X12 | 2 | XSB4+12KS | |
| 429 | 4 | TAPPING SCREW 2.6X6 | 2 | XTN26+6 | |
| 430 | 5 | TAPPING SCREW 3X8 | 2 | XTV3+8A | |
| | | | | | |
| 431 | 1 | SCREW 3X10 | 1 | XSN3D10F | |
| 432 | 5 | SCREW WITH WASHER 3X12 | 1 | XYN3+F12FNS | |
| 433 | 1 | TAPPING SCREW 2.6X6 | 1 | XTV26+6F | |
| 434 | 4 | TAPPING SCREW 2.6X6 | 2 | XTV26+6G | |
| 435 | 5 | GROUNDING PLATE | 1 | VSCS0408 | |
| | | | | | |
| 436 | 6 | TAPPING SCREW 3X12 | 6 | XTV3+12AK | |
| 437 | 5 | TAPPING SCREW 3X12 | 13 | XTV3+12AR | |
| | | | | OR XTV3+12JR | |
| 438 | 3 | TAPPING SCREW 3X15 | 1 | XTV3+15F | |
| 439 | 6 | TAPPING SCREW 3X25 | 3 | XTV3+25AK | |
| 440 | 5 | TAPPING SCREW 3X8 | 7 | XTV3+8B | |
| | | | | | |
| 441 | 5 | TAPPING SCREW 3X6 | 1 | XTV3+6 | |
| 442 | 1 | TAPPING SCREW 3X6 | 1 | XTV3+6F | |
| 443 | 5 | TAPPING SCREW 3X8 | 7 | XTV3+8 | |
| 444 | 5 | TAPPING SCREW 3X8 | 3 | XTV3+8AR | |
| | | | | OR XTV3+8JR | |
| 445 | 5 | TAPPING SCREW 3X10 | 2 | XTV3+10AR | |
| | | | | OR XTV3+10JR | |
| | | | | | |
| 446 | 1,2,3,4 | TAPPING SCREW 3X8 | 29 | XTV3+8F | |
| 447 | 5 | TAPPING SCREW 3X8 | 2 | XTV3+8FRS | |
| 448 | 4 | TAPPING SCREW 3X8 | 4 | XTV3+8G | |
| 449 | 4 | TAPPING SCREW 2.6X8 | 4 | XTW26+8P | |
| 450 | 1 | RETAINING RING E-TYPE 1.5 | 2 | XUC15FP | |
| | | | | | |
| 451 | 1,2 | RETAINING RING E-TYPE 2.5 | 3 | XUC25FP | |
| 452 | 2,3 | RETAINING RING C-TYPE 3 | 8 | XUEV3VW | |
| 453 | 1,2,4 | RETAINING RING C-TYPE 4 | 13 | XUEV4VW | |
| 454 | 1 | POLY SLIDER WASHER 2 | 1 | XWGV2D5G | |
| 455 | 1 | POLY SLIDER WASHER 3 | 1 | XWGV3D12G | |
| | | | | | |
| 456 | 1,2 | POLY SLIDER WASHER 3 | 4 | XWGV3D54G | |
| 457 | 1 | WASHER 5 | 1 | XWG5J12 | |
| 458 | 2 | POLY SLIDER WASHER 3 | 1 | XWXV3A54(t=0.25) | |
| 459 | 2 | POLY SLIDER WASHER 3 | 1 | XWXV3A8 (t=0.25) | |
| 460 | 1,2,3 | POLY SLIDER WASHER 3 | 11 | XWXV3D54(t=0.5) | |
| | | | | | |
| 461 | 2 | POLY SLIDER WASHER 3 | 1 | XWXV3D8 (t=0.5) | |
| 462 | 2 | POLY SLIDER WASHER 3 | 1 | XWXV3254(t=0.13) | |
| 463 | 2 | POLY SLIDER WASHER 3 | 1 | XWXV328 (t=0.13) | |
| 464 | 3 | POLY SLIDER WASHER 3 | 1 | XWXV35D6 | |
| 465 | 2 | POLY SLIDER WASHER 4 | 2 | XWXV4D11 | |
| | | | | | |

*This cut washer is not reusable. If removed, reinstall a new one.

| Item No. | Drawing No. | Description | Pcs/ Set | Part No. | Remark |
|---|---|---|---|---|---|
| 466 | 1,2 | POLY SLIDER WASHER 4 | 6 | XWXV4D9 | |
| 467 | 1 | SCREW WITH WASHER 2.6X8 | 1 | XYC26+CJ8 | |
| 468 | 3 | SCREW WITH WASHER 3X8 | 2 | XYC3+FF8 | |
| 469 | 4 | SCREW WITH WASHER 2.6X8 | 1 | XYE26+FJ8 | |
| 470 | 2 | SCREW WITH WASHER 3X10 | 3 | XYE3+FF10 | |
| | | | | | |
| 471 | 2 | SCREW WITH WASHER 3X8 | 1 | XYE3+FF8 | |
| 472 | 1 | SCREW WITH WASHER 3X8 | 1 | XYNV3+K8 | |
| 473 | 4 | TAPPING SCREW 2X10 | 2 | XYC2+FF10 | |
| 474 | 3 | SCREW WITH WASHER 2.6X33 | 2 | XYN26+C33 | |
| 475 | 1 | SCREW WITH WASHER 3X4 | 2 | XYN3+C4 | |
| | | | | | |
| 476 | 1 | SCREW WITH WASHER 3X12 | 2 | XYN3+F12 | |
| | | | | OR XYN3+F16 | |
| 477 | 1 | SCREW WITH WASHER 3X18 | 2 | XYN3+F18 | |
| 478 | 2,3 | SCREW WITH WASHER 3X8 | 2 | XYN3+F8 | |
| 479 | 2 | POLY SLIDER WASHER 3 | 1 | XWXV3D65 | |
| | | | | OR XWXV3D7 | |
| 480 | 2 | M3 NUT | 1 | VHD0045 | |
| | | | | OR VHNS0015 | |
| | | | | | |
| 481 | 2 | POLY SLIDER WASHER 6 | 1 | XWXV6F9 | |
| 482 | | | | | |
| 483 | 1 | CUT WASHER | 1 | VMXS0376* | |
| 484 | 1,4 | TAPPING SCREW 3X5 | 2 | XTV3+5F | |
| 485 | 1 | SCREW WITH WASHER 3X14 | 2 | XYN3+A14 | |
| | | | | | |
| 486 | 1 | SCREW WITH WASHER 3X10 | 2 | XYN3+A10BWS | |
| 487 | 5 | UHF TERMINAL SCREW | 4 | VHDS0055 | |
| 488 | 3 | THRUST SCREW | 1 | VMX0211 | |
| 489 | 1 | RETAINING RING C-TYPE 4 | 4 | XUEV4FP | |
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| 901 | 8 | ELECTRODE PLATE -COMMON | 1 | UR52TD101 | |
| 902 | 8 | OPERATION BUTTON -STOP | 1 | UR56BT76 | |
| 903 | 8 | OPERATION BUTTON -PLAY | 1 | UR56BT77 | |
| 904 | 8 | OPERATION BUTTON -PAUSE/STILL | 1 | UR56BT78 | |
| 905 | 8 | OPERATION BUTTON -FADV | 1 | UR56BT79 | |
| | | | | | |
| 906 | 8 | OPERATION BUTTON -FF/REWIND | 2 | UR56BT80 | |
| 907 | 8 | TOP CASE | 1 | UR56CS69 | |
| 908 | 8 | RUBBER PLATE FOR CONTACT | 1 | UR56CT72A | |
| 909 | 8 | PART NO PLATE | 1 | UR56LB86 | |
| 910 | 8 | TOP CASE DECORATION | 1 | UR56PP81 | |
| | | | | | |
| 911 | 8 | TOP CASE UNIT | 1 | UR56VCS38 | |
| 912 | 8 | BOTTOM CASE UNIT | 1 | UR56VCS39 | |
| 913 | 8 | BATTERY COVER UNIT | 1 | UR56VEC37 | |
| 914 | 8 | ELECTRODE PLATE -POSITIVE | 1 | UR57TD74 | |
| 915 | 8 | ELECTRODE PLATE -NEGATIVE | 1 | UR57TD75 | |
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| Item No. | Drawing No. | Description | Pcs/ Set | Part No. | Remark |
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| | | | | | |
| | | SERVICING FIXTURES & TOOLS | | | |
| | | | | | |
| | | VHS ALIGNMENT TAPE | | VFMS0001H6 | |
| | | DIAL TORQUE GAUGE | | VFK0133 | |
| | | PLASTIC CLAMPER | | VFK0180 | |
| | | ADAPTOR FOR VFK0133 | | VFK0134 | |
| | | FINE ADJ. SCREWDRIVER | | VFK0136 | |
| | | (for 3mmø Long Shaft) | | | |
| | | | | | |
| | | POST ADJ. SCREWDRIVER | | VFK0137 | |
| | | POST ADJ. PLATE | | VFKS0010 | |
| | | REEL TABLE HEIGHT FIXTURE | | VFKS0009 | |
| | | TENSION POST ADJ. PLATE | | VFKS0002 | |
| | | H-POSITION ADJ. FIXTURE | | VFKS0003 | |
| | | | | | |
| | | V-HOLD ADJ. TOOL | | VFKS0031 | |
| | | CASSETTE HOLDER FIXTURE | | VFKS0004 | |
| | | V-STOPPER ADJ. FIXTURE | | VFKS0029 | |
| | | RETAINING RING REMOVER | | VFK0144 | |
| | | (for 3mmø) | | | |
| | | RETAINING RING REMOVER | | VFK0145 | |
| | | (for 4mmø) | | | |
| | | | | | |
| | | HEAD CLEANING STICK | | VFK27 | |
| | | MOLYTONE GREASE | | MOR265 | |
| | | LOCK SCREW WRENCH | | VFKS0032 | |
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# ELECTRICAL REPLACEMENT PARTS LIST

**Model No. PV-1631M**

Special Note:
All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "Electrostatically Sensitive (ES) Devices" section of this service manual.

Note:
1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified by the sign ⚠ have special characteristics important for safety.
   When replacing any of these components, Use only the specified parts.
3. Unless otherwise specified;
   All resistors are in OHMS (Ω), 1/4W, ±5%, carbon, K=1,000Ω, M=1,000KΩ.
   All capacitors are in MICROFARADS (UF), P=UUF, ±10%.
   All coils are in MICROHENRIES (UH), M=10³U, ±10%.
4. C.B.A.: Circuit Board Assembly.
5. P.C.B.: Print Circuit Board.

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| | | | | | |
| | | | PRINTED CIRCUIT BOARD ASSEMBLY | | |
| | | VEPS0251B1 | MAIN C.B.A | 1 | |
| | | VEPS0344E1 | SIGNAL PROCESS C.B.A | 1 | |
| | | VEPS0508B1 | HEAD AMP UNIT | 1 | |
| | | VEPS0143A1 | POWER SUPPLY/SUB SYSTEM CONTROL C.B.A | 1 | |
| | | VEPS0424B1 | FM AUDIO C.B.A | 1 | |
| | | VEPS0422B1 | NORMAL AUDIO C.B.A | 1 | |
| | | VEPS06112A2 | OPERATION/AUDIO LEVEL METER C.B.A | 1 | |
| | | VEPS07117D1 | PROGRAMMABLE TIMER C.B.A | 1 | |
| | | VEPS0243C1 | CAPSTAN MOTOR DRIVE C.B.A | 1 | |
| | | VEPS0337A | LUMINANCE C.B.A | 1 | |
| | | VEPS0806A | CHROMINANCE C.B.A | 1 | |
| | | VEQS0257 | TV DEMODULATOR UNIT | 1 | |
| | | VEPS07130A1 | CHANNEL SELECT C.B.A | 1 | |
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| | | | MAIN C.B.A | | |
| | | | | | |
| | | | INTEGRATED CIRCUITS | | |
| IC2001 | | AN6359 | | 1 | |
| | | OR AN6359N | | | |
| IC2002 | | MN6168VIH | | 1 | |
| IC2003 | | AN6356N | | 1 | |
| IC2004 | | AN6387 | | 1 | |
| IC2005 | | UPD6110CA | | 1 | |
| IC2006,2007 | | AN1358 | | 2 | |
| | | OR AN6562 | | | |
| | | OR HA17358 | | | |
| | | OR UPC358C | | | |
| IC2008 | | AN1393 | | 1 | |
| | | OR AN6914 | | | |
| | | OR HA17393 | | | |
| | | OR UPC393C | | | |
| IC2009 | | MN4013B | | 1 | |
| | | OR TC4013BP | | | |
| | | OR UPD4013BC | | | |
| IC3201 | | TA7348P | | 1 | |
| IC4701,4702 | | AN6558 | | 2 | |
| | | OR BA4558 | | | |
| IC4703,4704 | | TA7347P | | 2 | |
| IC4705 | | BA715 | | 1 | |
| | | OR TA75557S | | | |
| IC6001 | | MN15846VRC | | 1 | |
| IC6004,6005 | | BA6209U | | 2 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | TRANSISTORS | | |
| Q2001,2002 | | 2SA937M(R) | | 2 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| Q2003,2004 | | 2SC2021M(R) | | 2 | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q2005,2006 | | 2SA937M(R) | | 2 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q2007-2011 | | 2SC2021M(R) | | 5 | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q2012 | | 2SA937M(R) | | 1 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q2013 | | 2SD1266 | | 1 | |
| | | OR 2SD856 | | | |
| Q2014 | | 2SA937M(R) | | 1 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q2015 | | 2SC2021M(R) | | 1 | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q2018,2019 | | 2SC2021M(R) | | 2 | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q2020 | | 2SC2925(S) | | 1 | |
| Q3201 | | 2SC2021M(R) | | 1 | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4701 | | 2SD636(Q,R,S) | | 1 | |
| Q4702 | | 2SB641(Q,R) | | 1 | |
| Q4703 | | 2SD655(E,F) | | 1 | |
| | | OR 2SD661(S,T) | | | |
| Q4704 | | 2SB641(Q,R) | | 1 | |
| Q4705 | | 2SD655(E,F) | | 1 | |
| | | OR 2SD661(S,T) | | | |
| Q4706,4707 | | 2SD636(Q,R,S) | | 2 | |
| Q6003-6005 | | 2SD636(Q,R,S) | | 3 | |
| Q6006 | | 2SD638(Q,R,S) | | 1 | |
| Q6007 | | 2SD636(Q,R,S) | | 1 | |
| Q6010-6012 | | 2SA937M(R) | | 3 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q6014 | | 2SD636(Q,R,S) | | 1 | |
| Q6016 | | 2SD636(Q,R,S) | | 1 | |
| Q6020 | | 2SD636(Q,R,S) | | 1 | |
| Q6021 | | 2SA937M(R) | | 1 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q6199 | | 2SD636(Q,R,S) | | 1 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | DIODES | | |
| D2001-2019 | | MA165 | | 19 | |
| | | OR 1SS119 | | | |
| D2022,2023 | | MA165 | | 2 | |
| | | OR 1SS119 | | | |
| D2026,2027 | | MA165 | | 2 | |
| | | OR 1SS119 | | | |
| D2038-2040 | | MA165 | | 3 | |
| | | OR 1SS119 | | | |
| D3201-3204 | | EQA02-13 | ZENER | 4 | |
| | | OR MA4130 | ZENER | | |
| | | OR RD13EB | ZENER | | |
| D3206,3207 | | MA165 | | 2 | |
| | | OR 1SS119 | | | |
| D4701 | | MA165 | | 1 | |
| D4702 | | MA4130 | ZENER | 1 | |
| D4703 | | MA165 | | 1 | |
| D4704-4709 | | MA4130 | ZENER | 6 | |
| D4710,4711 | | MA165 | | 2 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| D4712 | | MA4062 | ZENER | 1 | |
| | | OR RD6.2EB | ZENER | | |
| D6006,6007 | | MA165 | | 2 | |
| | | OR 1SS119 | | | |
| D6009-6015 | | MA165 | | 7 | |
| | | OR 1SS119 | | | |
| D6017,6018 | | MA165 | | 2 | |
| | | OR 1SS119 | | | |
| D6022,6023 | | MA165 | | 2 | |
| | | OR 1SS119 | | | |
| D6027 | | MA165 | | 1 | |
| | | OR 1SS119 | | | |
| D6029-6042 | | MA165 | | 14 | |
| | | OR 1SS119 | | | |
| D6198,6199 | | MA165 | | 2 | |
| | | OR 1SS119 | | | |
| D6201 | | RD20EB | ZENER | 1 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | RESISTORS | | |
| R2001 | | ERDS2TJ223 | 22K | 1 | |
| R2002 | | ERDS2TJ334 | 330K | 1 | |
| R2003 | | ERDS2TJ272 | 2.7K | 1 | |
| R2004 | | ERDS2TJ473 | 47K | 1 | |
| R2006 | | ERDS2TJ153 | 15K | 1 | |
| R2007 | | ERDS2TJ472 | 4.7K | 1 | |
| R2008 | | ERDS2TJ153 | 15K | 1 | |
| R2009-2011 | | ERDS2TJ103 | 10K | 3 | |
| R2012 | | ERDS2TJ153 | 15K | 1 | |
| R2013 | | ERDS2TJ105 | 1M | 1 | |
| R2014 | | ERDS2TJ333 | 33K | 1 | |
| R2015 | | ERDS2TJ102 | 1K | 1 | |
| R2016 | | ERDS2TJ472 | 4.7K | 1 | |
| R2017 | | ERDS2TJ103 | 10K | 1 | |
| R2018,2019 | | ERDS2TJ332 | 3.3K | 2 | |
| R2020-2022 | | ERDS2TJ470 | 47 | 3 | |
| R2023 | | EROS2TKG1801 | PRECISION METAL FILM 1.8K +-2% | 1 | |
| R2024 | | EROS2TKG6801 | PRECISION METAL FILM 6.8K +-2% | 1 | |
| R2025 | ⚠ | ERX12ANJR56 | METAL OXIDE 1/2W 0.56 | 1 | |
| | ⚠ | OR ERX12SJR56 | METAL OXIDE 1/2W 0.56 | | |
| R2026 | | ERDS2TJ104 | 100K | 1 | |
| R2027 | | ERDS2TJ124 | 120K | 1 | |
| R2028 | | ERDS2TJ823 | 82K | 1 | |
| R2029 | | ERDS2TJ473 | 47K | 1 | |
| R2030 | | ERDS2TJ124 | 120K | 1 | |
| R2031 | | ERDS2TJ272 | 2.7K | 1 | |
| R2032,2033 | | ERDS2TJ154 | 150K | 2 | |
| R2034 | | ERDS2TJ274 | 270K | 1 | |
| R2035 | | ERDS2TJ473 | 47K | 1 | |
| R2036 | | ERDS2TJ822 | 8.2K | 1 | |
| R2037 | | EROS2TKG6801 | PRECISION METAL FILM 6.8K +-2% | 1 | |
| R2038,2039 | | EROS2TKG1002 | PRECISION METAL FILM 10K +-2% | 2 | |
| R2040 | | EROS2TKG1202 | PRECISION METAL FILM 12K +-2% | 1 | |
| R2041 | | ERDS2TJ154 | 150K | 1 | |
| R2042 | | EVN38CA00B54 | VARIABLE 50K | 1 | |
| R2043 | | ERDS2TJ682 | 6.8K | 1 | |
| R2044,2045 | | ERDS2TJ104 | 100K | 2 | |
| R2046 | | ERDS2TJ563 | 56K | 1 | |
| R2047 | | ERDS2TJ104 | 100K | 1 | |
| R2048 | | ERDS2TJ393 | 39K | 1 | |
| R2049,2050 | | ERDS2TJ104 | 100K | 2 | |
| R2051 | | ERDS2TJ563 | 56K | 1 | |
| R2052-2054 | | ERDS2TJ393 | 39K | 3 | |
| R2055 | | EROS2TKG1003 | PRECISION METAL FILM 100K +-2% | 1 | |
| R2056 | | ERDS2TJ103 | 10K | 1 | |
| R2057 | | EROS2TKG1202 | PRECISION METAL FILM 12K +-2% | 1 | |
| R2058 | | EROS2TKG1602 | PRECISION METAL FILM 16K +-2% | 1 | |
| R2059 | | ERDS2TJ224 | 220K | 1 | |
| R2060 | | ERDS2TJ103 | 10K | 1 | |

| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| R2061 | EVJFFAF15B15 | VARIABLE 100K | 1 | |
| R2062 | ERDS2TJ223 | 22K | 1 | |
| R2063 | ERDS2TJ154 | 150K | 1 | |
| R2064 | ERDS2TJ562 | 5.6K | 1 | |
| R2065 | ERDS2TJ104 | 100K | 1 | |
| R2066 | EVNE4AA00B54 | VARIABLE 50K | 1 | |
| R2067 | ERDS2TJ103 | 10K | 1 | |
| R2068 | ERDS2TJ102 | 1K | 1 | |
| R2069 | EVN38CA00B15 | VARIABLE 100K | 1 | |
| R2070,2071 | ERDS2TJ104 | 100K | 2 | |
| R2072 | EVJFPAF15B15 | VARIABLE 100K | 1 | |
| R2073 | ERDS2TJ222 | 2.2K | 1 | |
| R2074 | ERDS2TJ181 | 180 | 1 | |
| R2075 | ERDS2TJ223 | 22K | 1 | |
| R2076 | ERDS2TJ474 | 470K | 1 | |
| R2077 | ERDS2TJ563 | 56K | 1 | |
| R2078,2079 | ERDS2TJ104 | 100K | 2 | |
| R2080 | ERDS2TJ333 | 33K | 1 | |
| R2081 | ERDS2TJ103 | 10K | 1 | |
| R2082 | ERDS2TJ223 | 22K | 1 | |
| R2083,2084 | ERDS2TJ823 | 82K | 2 | |
| R2085 | ERDS2TJ332 | 3.3K | 1 | |
| R2086 | ERDS2TJ103 | 10K | 1 | |
| R2087 | ERDS2TJ333 | 33K | 1 | |
| R2088,2089 | ERDS2TJ104 | 100K | 2 | |
| R2090 | ERDS2TJ184 | 180K | 1 | |
| R2091 | ERDS2TJ104 | 100K | 1 | |
| R2092 | ERDS2TJ684 | 680K | 1 | |
| R2093 | ERDS2TJ224 | 220K | 1 | |
| R2094 | ERDS2TJ223 | 22K | 1 | |
| R2096 | ERDS2TJ103 | 10K | 1 | |
| R2097 | EVN38CA00B54 | VARIABLE 50K | 1 | |
| R2098 | EVN38CA00B15 | VARIABLE 100K | 1 | |
| R2099,2100 | EVLS3MA00B15 | VARIABLE 100K | 2 | |
| R2101 | ERDS2TJ223 | 22K | 1 | |
| R2102 | ERDS2TJ273 | 27K | 1 | |
| R2103 | ERDS2TJ154 | 150K | 1 | |
| R2104 | ERDS2TJ472 | 4.7K | 1 | |
| R2105,2106 | ERDS2TJ103 | 10K | 2 | |
| R2107 | ERDS2TJ473 | 47K | 1 | |
| R2109 | ERDS2TJ822 | 8.2K | 1 | |
| R2114 | ERDS2TJ103 | 10K | 1 | |
| R2121 | ERDS2TJ473 | 47K | 1 | |
| R2122 | ERDS2TJ103 | 10K | 1 | |
| R2124 | ERDS2TJ103 | 10K | 1 | |
| R2125 | ERDS2TJ222 | 2.2K | 1 | |
| R2126 | ERDS2TJ104 | 100K | 1 | |
| R2127 | ERDS2TJ563 | 56K | 1 | |
| R2128 | ERDS2TJ224 | 220K | 1 | |
| R2129 | ERDS2TJ102 | 1K | 1 | |
| R2130 | ERDS2TJ473 | 47K | 1 | |
| R2131,2132 | ERDS2TJ104 | 100K | 2 | |
| R2133 | ERDS2TJ223 | 22K | 1 | |
| R2134 | ERDS2TJ183 | 18K | 1 | |
| R2135,2136 | ERDS2TJ562 | 5.6K | 2 | |
| R2137,2138 | ERDS2TJ104 | 100K | 2 | |
| R2139 | ERDS2TJ224 | 220K | 1 | |
| R2140 | ERDS2TJ561 | 560 | 1 | |
| R2142 | ERDS2TJ563 | 56K | 1 | |
| R2143 | ERDS2TJ333 | 33K | 1 | |
| R2144,2145 | ERDS2TJ104 | 100K | 2 | |
| R2146 | ERDS2TJ333 | 33K | 1 | |
| R3201 | ERDS2TJ101 | 100 | 1 | |
| R3203 | ERDS2TJ102 | 1K | 1 | |
| R3206 | ERDS2TJ103 | 10K | 1 | |
| R3207 | ERDS2TJ563 | 56K | 1 | |
| R3208 | ERDS2TJ473 | 47K | 1 | |
| R3209 | EVJFFAF15B24 | VARIABLE 20K | 1 | |
| R3210 | ERDS2TJ123 | 12K | 1 | |
| R3211 | ERDS2TJ472 | 4.7K | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| R3216 | | ERDS2TJ102 | 1K | 1 | |
| R4701 | | ERDS2TJ182 | 1.8K | 1 | |
| R4702,4703 | | ERDS2TJ103 | 10K | 2 | |
| R4704 | | ERDS2TJ105 | 1M | 1 | |
| R4705 | | ERDS2TJ101 | 100 | 1 | |
| R4706 | | ERDS2TJ104 | 100K | 1 | |
| R4707 | | ERDS2TJ183 | 18K | 1 | |
| R4708 | | ERDS2TJ103 | 10K | 1 | |
| R4709 | | ERDS2TJ473 | 47K | 1 | |
| R4710 | | ERDS2TJ563 | 56K | 1 | |
| R4711 | | ERDS2TJ562 | 5.6K | 1 | |
| R4712 | | ERDS2TJ473 | 47K | 1 | |
| R4713 | | ERDS2TJ563 | 56K | 1 | |
| R4714 | | ERDS2TJ182 | 1.8K | 1 | |
| R4715 | | ERDS2TJ473 | 47K | 1 | |
| R4716 | | ERDS2TJ105 | 1M | 1 | |
| R4717 | | ERDS2TJ101 | 100 | 1 | |
| R4718 | | ERDS2TJ104 | 100K | 1 | |
| R4719 | | ERDS2TJ183 | 18K | 1 | |
| R4720 | | ERDS2TJ103 | 10K | 1 | |
| R4721 | | ERDS2TJ563 | 56K | 1 | |
| R4722 | | ERDS2TJ562 | 5.6K | 1 | |
| R4723,4724 | | ERDS2TJ473 | 47K | 2 | |
| R4725 | | ERDS2TJ563 | 56K | 1 | |
| R4726 | | ERDS2TJ182 | 1.8K | 1 | |
| R4727 | | ERDS2TJ473 | 47K | 1 | |
| R4728,4729 | | ERDS2TJ151 | 150 | 2 | |
| R4730 | | ERDS2TJ473 | 47K | 1 | |
| R4731 | | ERDS2TJ102 | 1K | 1 | |
| R4732 | | ERDS2TJ473 | 47K | 1 | |
| R4733 | | ERDS2TJ102 | 1K | 1 | |
| R4734,4735 | | ERDS2TJ223 | 22K | 2 | |
| R4736 | | ERDS2TJ182 | 1.8K | 1 | |
| R4737 | | ERDS2TJ472 | 4.7K | 1 | |
| R4738,4739 | | ERDS2TJ154 | 150K | 2 | |
| R4740,4741 | | ERDS2TJ104 | 100K | 2 | |
| R4742,4743 | | ERDS2TJ102 | 1K | 2 | |
| R4744 | | ERDS2TJ561 | 560 | 1 | |
| R4746,4747 | | ERDS2TJ392 | 3.9K | 2 | |
| R4748,4749 | | ERDS2TJ154 | 150K | 2 | |
| R6008,6009 | | ERDS2TJ223 | 22K | 2 | |
| R6010 | | ERDS2TJ472 | 4.7K | 1 | |
| R6011 | | ERDS2TJ474 | 470K | 1 | |
| R6012 | | ERDS2TJ472 | 4.7K | 1 | |
| R6013,6014 | | ERDS2TJ104 | 100K | 2 | |
| R6015 | | ERDS2TJ472 | 4.7K | 1 | |
| R6021 | | ERDS2TJ824 | 820K | 1 | |
| R6022 | | ERDS2TJ102 | 1K | 1 | |
| R6023 | | ERDS2TJ273 | 27K | 1 | |
| R6024 | | ERDS2TJ123 | 12K | 1 | |
| R6025 | | ERDS2TJ102 | 1K | 1 | |
| R6026 | | ERDS2TJ223 | 22K | 1 | |
| R6027 | | ERDS2TJ563 | 56K | 1 | |
| R6028 | | ERDS2TJ102 | 1K | 1 | |
| R6029,6030 | | ERDS2TJ152 | 1.5K | 2 | |
| R6031 | | ERDS1TJ101 | 1/2W 100 | 1 | |
| R6032-6034 | | ERDS2TJ222 | 2.2K | 3 | |
| R6035 | | ERDS2TJ333 | 33K | 1 | |
| R6036 | | ERDS2TJ224 | 220K | 1 | |
| R6037 | | ERDS2TJ822 | 8.2K | 1 | |
| R6038 | | ERDS2TJ223 | 22K | 1 | |
| R6039-6041 | | ERDS2TJ822 | 8.2K | 3 | |
| R6042-6044 | | ERDS2TJ223 | 22K | 3 | |
| R6045 | | ERDS2TJ332 | 3.3K | 1 | |
| R6046 | | ERDS2TJ154 | 150K | 1 | |
| R6047 | | ERDS2TJ224 | 220K | 1 | |
| R6048,6049 | | ERDS2TJ223 | 22K | 2 | |
| R6053 | | ERDS2TJ222 | 2.2K | 1 | |
| R6054 | | ERDS2TJ392 | 3.9K | 1 | |
| R6055 | | ERDS2TJ683 | 68K | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| R6056,6057 | | ERDS2TJ822 | 8.2K | 2 | |
| R6058-6061 | | ERDS2TJ682 | 6.8K | 4 | |
| R6062 | | ERDS2TJ822 | 8.2K | 1 | |
| R6063 | | ERDS2TJ223 | 22K | 1 | |
| R6064 | | ERDS2TJ471 | 470 | 1 | |
| R6068,6069 | | ERDS2TJ392 | 3.9K | 2 | |
| R6077,6078 | | ERDS2TJ102 | 1K | 2 | |
| R6079 | | ERDS2TJ473 | 47K | 1 | |
| R6080,6081 | | ERDS2TJ472 | 4.7K | 2 | |
| R6082,6083 | | ERDS2TJ103 | 10K | 2 | |
| R6084,6085 | | ERDS2TJ472 | 4.7K | 2 | |
| R6087 | | ERDS2TJ104 | 100K | 1 | |
| R6088 | | ERDS2TJ472 | 4.7K | 1 | |
| R6089 | | ERDS2TJ102 | 1K | 1 | |
| R6091 | | ERDS2TJ102 | 1K | 1 | |
| R6092 | | ERDS2TJ103 | 10K | 1 | |
| R6093,6094 | | ERDS2TJ102 | 1K | 2 | |
| R6095 | | ERDS2TJ472 | 4.7K | 1 | |
| R6096 | ⚠ | ERDS1PJ2R7 | 1/2W 2.7 | 1 | |
| R6097 | | ERDS2TJ102 | 1K | 1 | |
| R6098 | | ERDS2TJ104 | 100K | 1 | |
| R6099 | | ERDS2TJ333 | 33K | 1 | |
| R6103,6104 | | ERDS2TJ472 | 4.7K | 2 | |
| R6108 | | ERDS2TJ274 | 270K | 1 | |
| R6109 | | ERDS2TJ333 | 33K | 1 | |
| R6111,6112 | | ERDS2TJ102 | 1K | 2 | |
| R6117 | | ERDS2TJ102 | 1K | 1 | |
| R6120 | | ERDS2TJ333 | 33K | 1 | |
| R6121,6122 | | ERDS2TJ562 | 5.6K | 2 | |
| R6123,6124 | | ERDS2TJ223 | 22K | 2 | |
| R6126,6127 | | ERDS2TJ562 | 5.6K | 2 | |
| R6128 | | ERDS2TJ332 | 3.3K | 1 | |
| R6129-6132 | | ERDS2TJ223 | 22K | 4 | |
| R6133 | | ERDS2TJ103 | 10K | 1 | |
| R6134 | | ERDS2TJ223 | 22K | 1 | |
| R6135 | | ERDS2TJ682 | 6.8K | 1 | |
| R6197 | | ERDS2TJ562 | 5.6K | 1 | |
| R6198,6199 | | ERDS2TJ104 | 100K | 2 | |
| R6201 | | ERDS2TJ102 | 1K | 1 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | CAPACITORS | | |
| C2001 | | ECEA1HS010 | ELECTROLYTIC 50V 1 | 1 | |
| | | OR ECEA1HU010 | ELECTROLYTIC 50V 1 | | |
| C2002 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C2003 | | ECEA1EN3R3S | ELECTROLYTIC 25V 3.3 | 1 | |
| C2004 | | ECQM1H103KV | POLYESTER 50V 0.01 | 1 | |
| | | OR ECQM1H103KZ | POLYESTER 50V 0.01 | | |
| C2005 | | ECEA1CS100 | ELECTROLYTIC 16V 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC 16V 10 | | |
| C2006 | | ECEA1HS010 | ELECTROLYTIC 50V 1 | 1 | |
| | | OR ECEA1HU010 | ELECTROLYTIC 50V 1 | | |
| C2007 | | ECEA1HN010S | ELECTROLYTIC 50V 1 | 1 | |
| C2008 | | ECEA1HSOR1 | ELECTROLYTIC 50V 0.1 | 1 | |
| | | OR ECEA1HUOR1 | ELECTROLYTIC 50V 0.1 | | |
| C2009 | | VCYSARC222NX | CERAMIC 16V 0.0022 +-30% | 1 | |
| C2010 | | VCYW1E152KX | CERAMIC 25V 0.0015 | 1 | |
| C2011 | | ECEA1HS2R2 | ELECTROLYTIC 50V 2.2 | 1 | |
| | | OR ECEA1HU2R2 | ELECTROLYTIC 50V 2.2 | | |
| C2012 | | ECEA1HN2R2S | ELECTROLYTIC 50V 2.2 | 1 | |
| C2013 | | ECEA1CS101 | ELECTROLYTIC 16V 100 | 1 | |
| | | OR ECEA1CU101 | ELECTROLYTIC 16V 100 | | |
| C2014 | | VCYSARC682NX | CERAMIC 16V 0.0068 +-30% | 1 | |
| C2015 | | ECEA1CS221 | ELECTROLYTIC 16V 220 | 1 | |
| | | OR ECEA1CU221 | ELECTROLYTIC 16V 220 | | |
| C2016,2017 | | ECEA1HN2R2S | ELECTROLYTIC 50V 2.2 | 2 | |
| C2018 | | VCYSARH102KB | CERAMIC 50V 0.001 | 1 | |
| C2019 | | ECEA1ES3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| | | OR ECEA1EU3R3 | ELECTROLYTIC 25V 3.3 | | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| C2020 | | ECQM1H123KV | POLYESTER 50V 0.012 | 1 | |
| | | OR ECQM1H123KZ | POLYESTER 50V 0.012 | | |
| C2021 | | ECEA1HSR22 | ELECTROLYTIC 50V 0.22 | 1 | |
| | | OR ECEA1HUR22 | ELECTROLYTIC 50V 0.22 | | |
| C2022 | | ECEA1HS010 | ELECTROLYTIC 50V 1 | 1 | |
| | | OR ECEA1HU010 | ELECTROLYTIC 50V 1 | | |
| C2023 | | VCYSARC472NX | CERAMIC 16V 0.0047 +-30% | 1 | |
| C2024 | | ECQM1H102KV | POLYESTER 50V 0.001 | 1 | |
| | | OR ECQM1H102KZ | POLYESTER 50V 0.001 | | |
| C2025 | | ECQM1H562KV | POLYESTER 50V 0.0056 | 1 | |
| | | OR ECQM1H562KZ | POLYESTER 50V 0.0056 | | |
| C2026 | | ECEA1HSOR1 | ELECTROLYTIC 50V 0.1 | 1 | |
| | | OR ECEA1HUOR1 | ELECTROLYTIC 50V 0.1 | | |
| C2027 | | ECEAOJS470 | ELECTROLYTIC 6.3V 47 | 1 | |
| | | OR ECEAOJU470 | ELECTROLYTIC 6.3V 47 | | |
| C2028 | | ECQM1H562KV | POLYESTER 50V 0.0056 | 1 | |
| | | OR ECQM1H562KZ | POLYESTER 50V 0.0056 | | |
| C2029 | | ECEA1HSOR1 | ELECTROLYTIC 50V 0.1 | 1 | |
| | | OR ECEA1HUOR1 | ELECTROLYTIC 50V 0.1 | | |
| C2030 | | ECQM1H562KV | POLYESTER 50V 0.0056 | 1 | |
| | | OR ECQM1H562KZ | POLYESTER 50V 0.0056 | | |
| C2031 | | ECEAOJS101 | ELECTROLYTIC 6.3V 100 | 1 | |
| | | OR ECEAOJU101 | ELECTROLYTIC 6.3V 100 | | |
| C2032 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C2033,2034 | | ECEAOJS470 | ELECTROLYTIC 6.3V 47 | 2 | |
| | | OR ECEAOJU470 | ELECTROLYTIC 6.3V 47 | | |
| C2035 | | ECQV05104JZ | POLYESTER 50V 0.1 +-5% | 1 | |
| | | OR ECQV1H104JZ | POLYESTER 50V 0.1 +-5% | | |
| C2036 | | ECQM1H472JV | POLYESTER 50V 0.0047 +-5% | 1 | |
| | | OR ECQM1H472JZ | POLYESTER 50V 0.0047 +-5% | | |
| C2037 | | ECQB1H563JH | POLYESTER 50V 0.056 +-5% | 1 | |
| | | OR ECQV05563JZ | POLYESTER 50V 0.056 +-5% | | |
| | | OR ECQV1H563JZ | POLYESTER 50V 0.056 +-5% | | |
| C2038 | | ECQV05124JB | POLYESTER 50V 0.12 +-5% | 1 | |
| | | OR ECQV1H124JZ | POLYESTER 50V 0.12 +-5% | | |
| C2039 | | ECEAOJS221 | ELECTROLYTIC 6.3V 220 | 1 | |
| | | OR ECEAOJU221 | ELECTROLYTIC 6.3V 220 | | |
| C2040 | | ECEAOJS470 | ELECTROLYTIC 6.3V 47 | 1 | |
| | | OR ECEAOJU470 | ELECTROLYTIC 6.3V 47 | | |
| C2041 | | VCYSARC472NX | CERAMIC 16V 0.0047 +-30% | 1 | |
| C2042 | | ECQM1H333KV | POLYESTER 50V 0.033 | 1 | |
| | | OR ECQM1H333KZ | POLYESTER 50V 0.033 | | |
| C2043 | | ECQV05274JZ | POLYESTER 50V 0.27 +-5% | 1 | |
| | | OR ECQV1H274JZ | POLYESTER 50V 0.27 +-5% | | |
| C2044 | | ECQM1H272KV | POLYESTER 50V 0.0027 | 1 | |
| | | OR ECQM1H272KZ | POLYESTER 50V 0.0027 | | |
| C2045,2046 | | ECEA1CS100 | ELECTROLYTIC 16V 10 | 2 | |
| | | OR ECEA1CU100 | ELECTROLYTIC 16V 10 | | |
| C2047 | | ECEAOJS470 | ELECTROLYTIC 6.3V 47 | 1 | |
| | | OR ECEAOJU470 | ELECTROLYTIC 6.3V 47 | | |
| C2048 | | VCYW1E393KX | CERAMIC 25V 0.039 | 1 | |
| C2049 | | ECEAOJS470 | ELECTROLYTIC 6.3V 47 | 1 | |
| | | OR ECEAOJU470 | ELECTROLYTIC 6.3V 47 | | |
| C2050 | | ECQM1H333KV | POLYESTER 50V 0.033 | 1 | |
| | | OR ECQM1H333KZ | POLYESTER 50V 0.033 | | |
| C2051 | | VCYSARC332NX | CERAMIC 16V 0.0033 +-30% | 1 | |
| C2052 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C2053 | | ECQV05334JZ | POLYESTER 50V 0.33 +-5% | 1 | |
| | | OR ECQV1H334JZ | POLYESTER 50V 0.33 +-5% | | |
| C2054 | | ECQM1H682KV | POLYESTER 50V 0.0068 | 1 | |
| | | OR ECQM1H682KZ | POLYESTER 50V 0.0068 | | |
| C2055 | | ECQM1H332KV | POLYESTER 50V 0.0033 | 1 | |
| | | OR ECQM1H332KZ | POLYESTER 50V 0.0033 | | |
| C2056 | | ECQV05334JZ | POLYESTER 50V 0.33 +-5% | 1 | |
| | | OR ECQV1H334JZ | POLYESTER 50V 0.33 +-5% | | |
| C2057 | | ECQM1H332KV | POLYESTER 50V 0.0033 | 1 | |
| | | OR ECQM1H332KZ | POLYESTER 50V 0.0033 | | |
| C2058 | | VCYSARC332NX | CERAMIC 16V 0.0033 +-30% | 1 | |
| C2059 | | VCYSARH102KB | CERAMIC 50V 0.001 | 1 | |
| | | | | | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| C2060 | | ECKW1H102ZF5 | CERAMIC 50V 0.001 | 1 | |
| | | | +80%-20% | | |
| C2061 | | ECQV05334JZ | POLYESTER 50V 0.33 +-5% | 1 | |
| | | OR ECQV1H334JZ | POLYESTER 50V 0.33 +-5% | | |
| C2063 | | ECKW1H102ZF5 | CERAMIC 50V 0.001 | 1 | |
| | | | +80%-20% | | |
| C2064,2065 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 2 | |
| C2066 | | ECQV05104JZ | POLYESTER 50V 0.1 +-5% | 1 | |
| | | OR ECQV1H104JZ | POLYESTER 50V 0.1 +-5% | | |
| | | OR ECQB1H104JH | POLYESTER 50V 0.1 +-5% | | |
| C2067 | | ECEAOJK470 | ELECTROLYTIC 6.3V 47 | 1 | |
| C2068,2069 | | ECKW1H222ZF5 | CERAMIC 50V 0.0022 | 2 | |
| | | | +80%-20% | | |
| C3201 | | ECEA1HS3R3 | ELECTROLYTIC 50V 3.3 | 1 | |
| | | OR ECEA1HU3R3 | ELECTROLYTIC 50V 3.3 | | |
| C3202 | | ECEA1ES100 | ELECTROLYTIC 25V 10 | 1 | |
| | | OR ECEA1EU100 | ELECTROLYTIC 25V 10 | | |
| C3203,3204 | | ECEA1HS2R2 | ELECTROLYTIC 50V 2.2 | 2 | |
| | | OR ECEA1HU2R2 | ELECTROLYTIC 50V 2.2 | | |
| C3205 | | ECEA1CS470 | ELECTROLYTIC 16V 47 | 1 | |
| | | OR ECEA1CU470 | ELECTROLYTIC 16V 47 | | |
| C3206 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | OR | +80%-20% | | |
| | | ECKW1H103ZV | CERAMIC 50V 0.01 | | |
| | | | +80%-20% | | |
| C4701,4702 | | ECEA1CK330 | ELECTROLYTIC 16V 33 | 2 | |
| C4703 | | ECEA1AK330 | ELECTROLYTIC 10V 33 | 1 | |
| C4704 | | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4705 | | ECEA1HK0R1 | ELECTROLYTIC 50V 0.1 | 1 | |
| C4706 | | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4707 | | ECCW1H151J5 | CERAMIC 50V 150P +-5% | 1 | |
| | | OR ECCW1H151K5 | CERAMIC 50V 150P | | |
| C4708 | | ECKW1H102KB5 | CERAMIC 50V 0.001 | 1 | |
| C4709 | | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4710 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4711,4712 | | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 2 | |
| C4713,4714 | | ECCW1H151J5 | CERAMIC 50V 150P +-5% | 2 | |
| | | OR ECCW1H151K5 | CERAMIC 50V 150P | | |
| C4715 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4716 | | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4717 | | ECEA1HK0R1 | ELECTROLYTIC 50V 0.1 | 1 | |
| C4718 | | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4719 | | ECCW1H151J5 | CERAMIC 50V 150P +-5% | 1 | |
| | | OR ECCW1H151K5 | CERAMIC 50V 150P | | |
| C4720 | | ECKW1H102KB5 | CERAMIC 50V 0.001 | 1 | |
| C4721 | | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4722 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4723,4724 | | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 2 | |
| C4725,4726 | | ECCW1H151J5 | CERAMIC 50V 150P +-5% | 2 | |
| | | OR ECCW1H151K5 | CERAMIC 50V 150P | | |
| C4727 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4728,4729 | | VCYS0001 | MULTI FUNCTION 0.01 | 2 | |
| C4730 | | ECCW1H820J5 | CERAMIC 50V 82P +-5% | 1 | |
| | | OR ECCW1H820K5 | CERAMIC 50V 82P | | |
| C4731 | | ECEA1CS100 | ELECTROLYTIC 16V 10 | 1 | |
| C4732 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C4733 | | ECEA1CN100S | ELECTROLYTIC 16V 10 | 1 | |
| C4734 | | ECQB1H153JZ | POLYESTER 50V 0.015 +-5% | 1 | |
| | | OR ECQB1H153KZ | POLYESTER 50V 0.015 | | |
| C4735 | | ECCW1H820J5 | CERAMIC 50V 82P +-5% | 1 | |
| | | OR ECCW1H820K5 | CERAMIC 50V 82P | | |
| C4736 | | ECEA1CS100 | ELECTROLYTIC 16V 10 | 1 | |
| C4737 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C4738 | | ECEA1CN100S | ELECTROLYTIC 16V 10 | 1 | |
| C4740 | | ECEA1AS330 | ELECTROLYTIC 10V 33 | 1 | |
| | | OR ECEA1AU330 | ELECTROLYTIC 10V 33 | | |
| C4741,4742 | | ECEA1CS330 | ELECTROLYTIC 16V 33 | 2 | |
| | | OR ECEA1CU330 | ELECTROLYTIC 16V 33 | | |

| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| C4744 | ECEA1ES3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| | OR ECEA1EU3R3 | ELECTROLYTIC 25V 3.3 | | |
| C4745 | ECEA1EN4R7S | ELECTROLYTIC 25V 4.7 | 1 | |
| C4746,4747 | ECEA1ES3R3 | ELECTROLYTIC 25V 3.3 | 2 | |
| | OR ECEA1EU3R3 | ELECTROLYTIC 25V 3.3 | | |
| C4748 | ECEA1EN4R7S | ELECTROLYTIC 25V 4.7 | 1 | |
| C4749-4751 | ECKW1H102KB5 | CERAMIC 50V 0.001 | 3 | |
| C4752 | VCYW1C104MX | CERAMIC 16V 0.1 +-20% | 1 | |
| C6002 | ECEA1CS100 | ELECTROLYTIC 16V 10 | 1 | |
| | OR ECEA1CU100 | ELECTROLYTIC 16V 10 | | |
| C6003 | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C6004 | ECEA0JS221 | ELECTROLYTIC 6.3V 220 | 1 | |
| | OR ECEA0JU221 | ELECTROLYTIC 6.3V 220 | | |
| C6005 | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C6006 | ECCW1H080CC | CERAMIC 50V 8P | 1 | |
| | | +-0.25PF | | |
| C6007 | ECRHA020D11 | TRIMMER 20P | 1 | |
| | OR MCV03R200ER | TRIMMER 20P | | |
| C6009,6010 | ECKW1H472ZF5 | CERAMIC 50V 0.0047 | 2 | |
| | | +80%-20% | | |
| C6011 | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C6012 | VCYW1C104MX | CERAMIC 16V 0.1 +-20% | 1 | |
| C6013 | ECKW1H222ZF5 | CERAMIC 50V 0.0022 | 1 | |
| | | +80%-20% | | |
| C6017 | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C6019 | ECEA1CS221 | ELECTROLYTIC 16V 220 | 1 | |
| | OR ECEA1CU221 | ELECTROLYTIC 16V 220 | | |
| C6021,6022 | VCYW1C104MX | CERAMIC 16V 0.1 +-20% | 2 | |
| C6024 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C6025 | ECKW1H102ZF5 | CERAMIC 50V 0.001 | 1 | |
| | | +80%-20% | | |
| C6026 | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C6027,6028 | VCYW1C104MX | CERAMIC 16V 0.1 +-20% | 2 | |
| C6031 | ECCW1H470JC5 | CERAMIC 50V 47P +-5% | 1 | |
| C6032 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C6033 | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C6201 | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| | | COILS | | |
| L4701 | VLQS78F682K | 6.8M | 1 | |
| L6001 | VLQS66R101K | 100 | 1 | |
| | | CRYSTAL OSCILLATOR | | |
| X6001 | VSXS0002 | | 1 | |
| | | PIN HEADERS | | |
| P2001 | VJPS0016 | 12P | 1 | |
| P2002 | VJPS0100 | 4P | 1 | |
| P2003 | VJPS0098 | 2P | 1 | |
| P2004 | VJPS0041 | 10P | 1 | |
| P2005 | VJPS0098 | 2P | 1 | |
| P2006 | VJPS0104 | 8P | 1 | |
| P3201 | VJPS0104 | 8P | 1 | |
| P6001 | VJPS0107 | 11P | 1 | |
| P6002 | VJPS0100 | 4P | 1 | |
| P6003 | VJPS0102 | 6P | 1 | |
| P6005 | VJPS0098 | 2P | 1 | |
| P6007 | VJPS0106 | 10P | 1 | |

| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| P6008 | VJPS0105 | 9P | 1 | |
| P6010 | VJPS0102 | 6P | 1 | |
| | | SWITCH | | |
| SW2001 | VSSS0034 | SP/LP/SLP SELECT | 1 | |
| | | MISCELLANEOUS | | |
| | TMM7443 | CLAMPER | 4 | |
| | T18S | FASTENER | 2 | |
| | VEKS1890 | LUG ASS'Y | 1 | |
| | VJJS0069 | REAR JACK | 1 | |
| | VMX0573 | SPACER | 4 | |
| | VSCS0497 | SHIELD CASE | 1 | |
| | VSCS0498 | SHIELD CASE | 1 | |
| | VZFS0006 | CLAMPER | 2 | |
| | | SIGNAL PROCESS C.B.A | | |
| | | TRANSISTORS | | |
| Q3001,3002 | 2SC2021M(Q,R,S) | | 2 | |
| | OR | | | |
| | 2SD636(Q,R,S) | | | |
| Q3006 | 2SA937M(Q,R,S) | | 1 | |
| | OR | | | |
| | 2SB641(Q,R,S) | | | |
| Q3007,3008 | 2SC2021M(Q,R,S) | | 2 | |
| | OR | | | |
| | 2SD636(Q,R,S) | | | |
| Q3010 | 2SA937M(Q,R,S) | | 1 | |
| | OR | | | |
| | 2SB641(Q,R,S) | | | |
| Q4551 | 2SC2021M(Q,R,S) | | 1 | |
| | OR | | | |
| | 2SD636(Q,R,S) | | | |
| Q4552 | 2SA950Y | | 1 | |
| | OR 2SB643 | | | |
| Q4553 | 2SD637 | | 1 | |
| Q7001,7002 | 2SD637(Q,R,S) | | 2 | |
| Q7004,7005 | 2SD637(Q,R,S) | | 2 | |
| Q7006 | 2SC2021M(Q,R,S) | | 1 | |
| | OR | | | |
| | 2SD636(Q,R,S) | | | |
| | | DIODES | | |
| D3003 | EQA02-09-D | ZENER | 1 | |
| | OR MA4091H | ZENER | | |
| | OR RD10EB1 | ZENER | | |
| D3004 | MA165 | | 1 | |
| | OR 1SS119 | | | |
| D3005 | EQA02-11 | ZENER | 1 | |
| | OR MA4110 | ZENER | | |
| | OR RD11EB | ZENER | | |
| D3006 | MA165 | | 1 | |
| | OR 1SS119 | | | |
| D7001 | MA165 | | 1 | |
| | OR 1SS119 | | | |
| D7003 | MA4100H | ZENER | 1 | |
| D7005 | MA165 | | 1 | |
| | OR 1SS119 | | | |
| D7006,7007 | RD15EB | ZENER | 2 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
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| | | | RESISTORS | | |
| R3001 | | EVNE4AA00B23 | VARIABLE 2K | 1 | |
| R3002 | | ERDS2TJ821 | 820 | 1 | |
| R3003 | | ERDS2TJ122 | 1.2K | 1 | |
| R3004 | | ERDS2TJ222 | 2.2K | 1 | |
| R3005 | | ERDS2TJ681 | 680 | 1 | |
| R3006 | | ERDS2TJ820 | 82 | 1 | |
| R3015 | | ERDS2TJ681 | 680 | 1 | |
| R3016 | | EVNE4AA00B13 | VARIABLE 1K | 1 | |
| R3017 | | ERDS2TJ561 | 560 | 1 | |
| R3018 | | ERDS2TJ392 | 3.9K | 1 | |
| R3019 | | ERDS2TJ333 | 33K | 1 | |
| R3020 | | ERDS2TJ473 | 47K | 1 | |
| R3030,3031 | | ERDS2TJ103 | 10K | 2 | |
| R3034 | | ERDS2TJ471 | 470 | 1 | |
| R3035 | | ERDS2TJ680 | 68 | 1 | |
| R3036 | | ERDS2TJ102 | 1K | 1 | |
| R3037 | | ERDS2TJ561 | 560 | 1 | |
| R3040 | | ERDS2TJ153 | 15K | 1 | |
| R3041 | | ERDS2TJ563 | 56K | 1 | |
| R3042 | | ERDS2TJ223 | 22K | 1 | |
| R3043-3045 | | ERDS2TJ473 | 47K | 3 | |
| R3046 | | ERDS2TJ333 | 33K | 1 | |
| R3048 | | ERDS2TJ682 | 6.8K | 1 | |
| R3049,3050 | | ERDS2TJ332 | 3.3K | 2 | |
| R3054 | | ERDS2TJ562 | 5.6K | 1 | |
| R3055 | | ERDS2TJ101 | 100 | 1 | |
| R3056 | | ERDS2TJ681 | 680 | 1 | |
| R3060 | | ERDS2TJ563 | 56K | 1 | |
| R3061 | | ERDS2TJ102 | 1K | 1 | |
| R3064 | | ERDS2TJ102 | 1K | 1 | |
| R4551,4552 | | ERDS2TJ223 | 22K | 2 | |
| R4553 | | ERDS2TJ333 | 33K | 1 | |
| R4554,4555 | | ERDS2TJ472 | 4.7K | 2 | |
| R7001 | | ERDS2TJ273 | 27K | 1 | |
| R7002 | | ERDS2TJ222 | 2.2K | 1 | |
| R7003 | | ERDS2TJ183 | 18K | 1 | |
| R7004 | | AVNE4AA0B102 | VARIABLE 1K | 1 | |
| | | OR EVNE4AA00B13 | VARIABLE 1K | | |
| R7005 | | ERDS2TJ681 | 680 | 1 | |
| R7006 | | EROS2TKG6802 | PRECISION METAL FILM 68K +-2% | 1 | |
| R7008 | | EROS2TKG1203 | PRECISION METAL FILM 120K +-2% | 1 | |
| R7011 | | ERDS2TJ103 | 10K | 1 | |
| R7012 | | ERDS2TJ473 | 47K | 1 | |
| R7013 | | ERDS2TJ104 | 100K | 1 | |
| R7016 | | ERDS2TJ393 | 39K | 1 | |
| R7017,7018 | | ERDS2TJ104 | 100K | 2 | |
| R7019 | | ERDS1TJ151 | 1/2W 150 | 1 | |
| R7020 | | ERDS2TJ103 | 10K | 1 | |
| R7021 | | ERDS2TJ153 | 15K | 1 | |
| R7022,7023 | | ERDS2TJ221 | 220 | 2 | |
| R7026 | | ERDS2TJ151 | 150 | 1 | |
| R7027 | | ERDS1TJ221 | 1/2W 220 | 1 | |
| R7028 | | ERDS2TJ101 | 100 | 1 | |
| R7031 | | ERDS2TJ223 | 22K | 1 | |
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| | | | CAPACITORS | | |
| C3001 | | VCYSARH820KB | CERAMIC 50V 82P | 1 | |
| C3002 | | VCYSARH331KB | CERAMIC 50V 330P | 1 | |
| C3003 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C3004 | | VCYSARH820KB | CERAMIC 50V 82P | 1 | |
| C3016 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C3027 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C3028 | | ECEA1CS470 | ELECTROLYTIC 16V 47 | 1 | |
| | | OR ECEA1CU470 | ELECTROLYTIC 16V 47 | | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| C3029 | | ECEA1JS471 | ELECTROLYTIC 63V 470 | 1 | |
| | | OR ECEA1JU471 | ELECTROLYTIC 63V 470 | | |
| C3030 | | ECKF1H103ZV | CERAMIC 50V 0.01 +80%-20% | 1 | |
| C3031 | | ECEAOJS470 | ELECTROLYTIC 6.3V 47 | 1 | |
| C3040 | | VCYSARH102KB | CERAMIC 50V 0.001 | 1 | |
| C3041 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C3042 | | ECEA1CN100S | ELECTROLYTIC 16V 10 | 1 | |
| C3043,3044 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 2 | |
| C4551 | | ECEA1CS100 | ELECTROLYTIC 16V 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC 16V 10 | | |
| C4555 | | VCYW1E153KX | CERAMIC 25V 0.015 | 1 | |
| C4556 | | ECKW1H472ZF5 | CERAMIC 50V 0.0047 +80%-20% | 1 | |
| C4557 | | ECQB1H333KZ | POLYESTER 50V 0.033 | 1 | |
| | | OR ECQV05333JZ | POLYESTER 50V 0.033 +-5% | | |
| C4558 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C4559 | | ECEA1HN4R7S | ELECTROLYTIC 50V 4.7 | 1 | |
| C7001 | | ECEA1ES220 | ELECTROLYTIC 25V 22 | 1 | |
| | | OR ECEA1EU220 | ELECTROLYTIC 25V 22 | | |
| C7002 | | ECEA1ES4R7 | ELECTROLYTIC 25V 4.7 | 1 | |
| | | OR ECEA1EU4R7 | ELECTROLYTIC 25V 4.7 | | |
| C7003 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 +80%-20% | 1 | |
| C7004 | | ECQB1H103KZ | POLYESTER 50V 0.01 | 1 | |
| | | OR ECQM1H103KV | POLYESTER 50V 0.01 | | |
| | | OR ECQM1H103KZ | POLYESTER 50V 0.01 | | |
| C7005 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 +80%-20% | 1 | |
| C7007 | | ECQB1H333JZ | POLYESTER 50V 0.033 +-5% | 1 | |
| | | OR ECQM1H333KV | POLYESTER 50V 0.033 | | |
| C7008 | | ECEA1HS010 | ELECTROLYTIC 50V 1 | 1 | |
| | | OR ECEA1HU010 | ELECTROLYTIC 50V 1 | | |
| C7009 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 +80%-20% | 1 | |
| C7010 | | ECEA1CU102 | ELECTROLYTIC 16V 1000 | 1 | |
| C7012 | | ECEA1CS470 | ELECTROLYTIC 16V 47 | 1 | |
| | | OR ECEA1CU470 | ELECTROLYTIC 16V 47 | | |
| C7013 | | ECEA50ZR1 | ELECTROLYTIC 50V 0.1 | 1 | |
| C7014 | | ECEAOJS102 | ELECTROLYTIC 6.3V 1000 | 1 | |
| | | OR ECEAOJU102 | ELECTROLYTIC 6.3V 1000 | | |
| C7016 | | ECEA1ES220 | ELECTROLYTIC 25V 22 | 1 | |
| | | OR ECEA1EU220 | ELECTROLYTIC 25V 22 | | |
| C7017 | | ECEA1CS221 | ELECTROLYTIC 16V 220 | 1 | |
| | | OR ECEA1CU221 | ELECTROLYTIC 16V 220 | | |
| C7020 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 +80%-20% | 1 | |
| C7021 | | ECQB1H273KZ | POLYESTER 50V 0.027 | 1 | |
| | | OR ECQM1H273KV | POLYESTER 50V 0.027 | | |
| C7023 | | ECEAOJS221 | ELECTROLYTIC 6.3V 220 | 1 | |
| | | OR ECEAOJU221 | ELECTROLYTIC 6.3V 220 | | |
| C7024 | | MCCW1H360JC | CERAMIC 50V 36P +-5% | 1 | |
| C7026 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 +80%-20% | 1 | |
| C7027 | | ECEA1CS100 | ELECTROLYTIC 16V 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC 16V 10 | | |
| C7028 | | ECEA1HS010 | ELECTROLYTIC 50V 1 | 1 | |
| | | OR ECEA1HU010 | ELECTROLYTIC 50V 1 | | |
| C7029,7030 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 +80%-20% | 2 | |
| C7033 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 +80%-20% | 1 | |
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| | | | COILS | | |
| L3001 | | VLQSA04R820K | 82 | 1 | |
| L3002 | | VLQS66R101K | 100 | 1 | |
| L3012 | | VLQS66R101K | 100 | 1 | |
| L4551 | | VLQS66F221K | 220 | 1 | |

| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| L7001,7002 | VLQSL01101K | 100 | 2 | |
| L7003 | VLQS66R470K | 47 | 1 | |
| L7004 | VLQS66R330K | 33 | 1 | |
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| | | TRANSFORMER | | |
| T4551 | ELM7Q019E | | 1 | |
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| | | PRINTED CIRCUIT BOARD ASSEMBLY | | |
| | VEPS0337A | LUMINANCE C.B.A | 1 | |
| | VEPS0508B1 | HEAD AMP UNIT | 1 | |
| | VEPS0806A | CHROMINANCE C.B.A | 1 | |
| | VEQS0257 | TV DEMODULATOR UNIT | 1 | |
| | | | | |
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| | | | | |
| | | MISCELLANEOUS | | |
| | T18S | FASTENER | 2 | |
| | VEKS1793 | LUG ASS'Y | 1 | |
| | VMAS0953 | SIGNAL PROCESS C.B.A ANGLE | 1 | |
| | VMTS0035 | CUSHION | 7 | |
| | VMXS0366 | SPACER | 2 | |
| | VZFS0006 | CLAMPER | 1 | |
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| | | | | |
| | | HEAD AMP UNIT | | |
| | | | | |
| | | INTEGRATED CIRCUITS | | |
| IC3501 | AN3220K | | 1 | |
| IC3502 | AN3310K | | 1 | |
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| | | | | |
| | | TRANSISTORS | | |
| Q3502 | 2SC2206 | | 1 | |
| Q3503,3504 | 2SC2021M(Q,R,S) | | 2 | |
| | OR | | | |
| | 2SD636(Q,R,S) | | | |
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| | | | | |
| | | | | |
| | | RESISTORS | | |
| R3501 | ERDS2TJ681 | 680 | 1 | |
| R3502 | ERDS2TJ122 | 1.2K | 1 | |
| R3503 | ERDS2TJ151 | 150 | 1 | |
| R3504 | ERDS2TJ222 | 2.2K | 1 | |
| R3505-3508 | ERDS2TJ100 | 10 | 4 | |
| R3509-3512 | ERDS2TJ102 | 1K | 4 | |
| R3513 | ERDS2TJ681 | 680 | 1 | |
| R3514 | ERDS2TJ821 | 820 | 1 | |
| R3515 | ERDS2TJ561 | 560 | 1 | |
| R3516 | ERDS2TJ821 | 820 | 1 | |
| R3517 | ERDS2TJ152 | 1.5K | 1 | |
| R3518 | ERDS2TJ222 | 2.2K | 1 | |
| R3519,3520 | ERDS2TJ102 | 1K | 2 | |
| R3521 | ERDS2TJ271 | 270 | 1 | |
| R3522 | ERDS2TJ122 | 1.2K | 1 | |
| R3523 | ERDS2TJ102 | 1K | 1 | |
| R3524 | ERDS2TJ223 | 22K | 1 | |
| R3525 | ERDS2TJ683 | 68K | 1 | |
| R3526 | ERDS2TJ392 | 3.9K | 1 | |
| R3527 | ERDS2TJ223 | 22K | 1 | |
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| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| | | CAPACITORS | | |
| C3501 | ECKZ1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | OR | +80%-20% | | |
| | ECKZ1H103ZV | CERAMIC 50V 0.01 | | |
| | | +80%-20% | | |
| C3502 | ECCZ1H180JC | CERAMIC 50V 18P +-5% | 1 | |
| | OR ECCZ1H180JC6 | CERAMIC 50V 18P +-5% | | |
| C3504 | VCYD1C104MX | CERAMIC 16V 0.1 +-20% | 1 | |
| C3505 | ECKZ1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | OR | +80%-20% | | |
| | ECKZ1H103ZV | CERAMIC 50V 0.01 | | |
| | | +80%-20% | | |
| C3506 | VCYD1C104MX | CERAMIC 16V 0.1 +-20% | 1 | |
| C3507 | ECKZ1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | OR | +80%-20% | | |
| | ECKZ1H103ZV | CERAMIC 50V 0.01 | | |
| | | +80%-20% | | |
| C3508,3509 | ECEA1CK470 | ELECTROLYTIC 16V 47 | 2 | |
| C3510 | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C3511 | ECKZ1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | OR | +80%-20% | | |
| | ECKZ1H103ZV | CERAMIC 50V 0.01 | | |
| | | +80%-20% | | |
| C3512 | ECCZ1H270JC | CERAMIC 50V 27P +-5% | 1 | |
| | OR ECCZ1H270JC6 | CERAMIC 50V 27P +-5% | | |
| C3513 | ECKZ1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | OR | +80%-20% | | |
| | ECKZ1H103ZV | CERAMIC 50V 0.01 | | |
| | | +80%-20% | | |
| C3514 | ECCZ1H330JC | CERAMIC 50V 33P +-5% | 1 | |
| | OR ECCZ1H330JC6 | CERAMIC 50V 33P +-5% | | |
| C3515,3516 | ECEA1HK010 | ELECTROLYTIC 50V 1 | 2 | |
| C3517 | ECKZ1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | OR | +80%-20% | | |
| | ECKZ1H103ZV | CERAMIC 50V 0.01 | | |
| | | +80%-20% | | |
| C3518 | ECCW1H150JC | CERAMIC 50V 15P +-5% | 1 | |
| | OR ECCW1H150JC6 | CERAMIC 50V 15P +-5% | | |
| | OR ECCZ1H150JC | CERAMIC 50V 15P +-5% | | |
| | OR ECCZ1H150JC6 | CERAMIC 50V 15P +-5% | | |
| C3519 | ECKZ1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | OR | +80%-20% | | |
| | ECKZ1H103ZV | CERAMIC 50V 0.01 | | |
| | | +80%-20% | | |
| C3520 | ECCZ1H330JC | CERAMIC 50V 33P +-5% | 1 | |
| | OR ECCZ1H330JC6 | CERAMIC 50V 33P +-5% | | |
| C3521 | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C3522,3523 | ECKZ1H103ZF5 | CERAMIC 50V 0.01 | 2 | |
| | OR | +80%-20% | | |
| | ECKZ1H103ZV | CERAMIC 50V 0.01 | | |
| | | +80%-20% | | |
| C3524 | ECEA1CK470 | ELECTROLYTIC 16V 47 | 1 | |
| C3525 | ECKZ1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | OR | +80%-20% | | |
| | ECKZ1H103ZV | CERAMIC 50V 0.01 | | |
| | | +80%-20% | | |
| C3526 | ECCZ1H220JC | CERAMIC 50V 22P +-5% | 1 | |
| | OR ECCZ1H220JC6 | CERAMIC 50V 22P +-5% | | |
| C3527 | ECCZ1H470JC | CERAMIC 50V 47P +-5% | 1 | |
| | OR ECCZ1H470JC6 | CERAMIC 50V 47P +-5% | | |
| C3528 | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C3529 | ECCW1H820JC | CERAMIC 50V 82P +-5% | 1 | |
| | OR ECCW1H820JC6 | CERAMIC 50V 82P +-5% | | |
| C3530 | ECKW1H102KB5 | CERAMIC 50V 0.001 | 1 | |
| C3532,3533 | ECKZ1H103ZF5 | CERAMIC 50V 0.01 | 2 | |
| | OR | +80%-20% | | |
| | ECKZ1H103ZV | CERAMIC 50V 0.01 | | |
| | | +80%-20% | | |
| C3534 | ECKZ1H331KB | CERAMIC 50V 330P | 1 | |
| | OR ECKZ1H331KB6 | CERAMIC 50V 330P | | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
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| | | | COILS | | |
| L3501 | | VLQEL05R330K | 33 | 1 | |
| L3502 | | VLQEL05R101K | 100 | 1 | |
| L3503-3506 | | VEKS1989 | 2 | 4 | |
| L3507,3508 | | VLQEL05R101K | 100 | 2 | |
| L3509 | | VLQEL05R470K | 47 | 1 | |
| L3510 | | VLQEL05R220K | 22 | 1 | |
| L3511 | | VLQEL05R330K | 33 | 1 | |
| L3512 | | VLQEL05R181K | 180 | 1 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | PIN HEADER | | |
| P3501 | | VJPS0039 | 8P | 1 | |
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| | | | | | |
| | | | | | |
| | | | MISCELLANEOUS | | |
| | | VJHS0045 | PACK PIN | 3 | |
| | | VSCS0410 | SHIELD CASE | 1 | |
| | | VSCS0428 | SHIELD CASE | 1 | |
| | | VSCS0430 | SHIELD CASE | 1 | |
| | | VSCS0572 | SHIELD CASE | 1 | |
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| | | | POWER SUPPLY/SUB SYSTEM CONTROL | | |
| | | | C.B.A | | |
| | | | | | |
| | | | INTEGRATED CIRCUITS | | |
| IC1001 | | TLP521-1-YG | | 1 | |
| | | OR ON3111 | | | |
| IC6003 | | MB88201-128L | | 1 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | TRANSISTORS | | |
| Q1001 | ⚠ | 2SD1244 | | 1 | |
| Q1002 | | 2SB976 | | 1 | |
| Q1003 | | 2SB642 | | 1 | |
| Q1004 | ⚠ | 2SC3577 | | 1 | |
| Q1006 | | 2SD1643 | | 1 | |
| Q1007 | | 2SD637 | | 1 | |
| Q1009 | | 2SD636(Q,R,S) | | 1 | |
| Q1010 | | 2SB642 | | 1 | |
| Q1011 | | 2SB644 | | 1 | |
| Q1012 | | 2SB642 | | 1 | |
| Q1013 | | 2SC2594 | | 1 | |
| Q1014 | | 2SD1458 | | 1 | |
| Q1015,1016 | | 2SD639 | | 2 | |
| Q6001 | | 2SB641(Q,R,S) | | 1 | |
| Q6002 | | 2SD636(Q,R,S) | | 1 | |
| Q6008,6009 | | 2SD636(Q,R,S) | | 2 | |
| Q6019 | | 2SD636(Q,R,S) | | 1 | |
| Q6221 | | 2SD636(Q,R,S) | | 1 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | DIODES | | |
| D1001 | ⚠ | S1VB60S | | 1 | |
| | ⚠ | OR 1J4B41 | | | |
| D1002 | ⚠ | ERB43-08 | | 1 | |
| D1003-1005 | | MA165 | | 3 | |
| D1006 | | MA4130H | ZENER | 1 | |
| D1007 | | MA170 | | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| D1008 | | MA165 | | 1 | |
| D1009 | ⚠ | MA167 | | 1 | |
| D1010 | | D1K40 | | 1 | |
| | | OR ERB43-04 | | | |
| D1011 | | MA651 | | 1 | |
| D1012 | | D1K40 | | 1 | |
| | | OR ERB43-04 | | | |
| D1013 | | MA4068M | ZENER | 1 | |
| D1014 | | MA165 | | 1 | |
| D1015 | | ERB81-004 | | 1 | |
| D1019 | | MA4051M | ZENER | 1 | |
| D1020 | | MA165 | | 1 | |
| D1021 | ⚠ | MA4051M | ZENER | 1 | |
| D1022 | | MA4130L | ZENER | 1 | |
| D1023,1024 | | MA165 | | 2 | |
| D1026 | | MA4051 | ZENER | 1 | |
| | | OR RD5.1EB | ZENER | | |
| D1030 | | D1K40 | | 1 | |
| | | OR ERB43-04 | | | |
| D1031,1032 | | MA165 | | 2 | |
| D1033 | | MA4150L | | 1 | |
| D6001-6004 | | MA165 | | 4 | |
| | | OR 1SS119 | | | |
| D6005 | | RD5.6EB2 | ZENER | 1 | |
| D6221 | | MA165 | | 1 | |
| | | OR 1SS119 | | | |
| | | | | | |
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| | | | | | |
| | | | RESISTORS | | |
| R1001 | | ERDS2TJ334 | 330K | 1 | |
| R1002 | ⚠ | ERG3SJ333 | METAL OXIDE 3W 33K | 1 | |
| | ⚠ | OR KRG3SJ333 | METAL OXIDE 3W 33K | | |
| R1003 | ⚠ | ERD25FJ6R2 | 6.2 | 1 | |
| R1004 | ⚠ | ERD25FJ222 | 2.2K | 1 | |
| R1005 | ⚠ | ERD25FJ152 | 1.5K | 1 | |
| R1006 | ⚠ | ERD25FJ4R7 | 4.7 | 1 | |
| R1008 | ⚠ | ERD25FJ472 | 4.7K | 1 | |
| R1009 | | ERDS2TJ471 | 470 | 1 | |
| R1010 | ⚠ | ERD25FJ560 | 56 | 1 | |
| R1011 | ⚠ | ERD25FJ330 | 33 | 1 | |
| R1012 | | ERDS2TJ331 | 330 | 1 | |
| R1013 | | ERDS2TJ104 | 100K | 1 | |
| R1017 | | ERDS2TJ221 | 220 | 1 | |
| R1018 | | ERDS2TJ562 | 5.6K | 1 | |
| R1019 | | ERDS2TJ103 | 10K | 1 | |
| R1020 | | ERDS2TJ562 | 5.6K | 1 | |
| R1021 | | ERDS2TJ221 | 220 | 1 | |
| R1022 | | ERDS2TJ3R3 | 3.3 | 1 | |
| R1023 | ⚠ | ERDS1FJ1R0 | 1/2W 1 | 1 | |
| R1025 | ⚠ | ERC12ZGK275 | SOLID 1/2W 2.7M +-10% | 1 | |
| R1026 | | ERDS2TJ472 | 4.7K | 1 | |
| R1027,1028 | | ERDS2TJ104 | 100K | 2 | |
| R1029 | | ERDS2TJ103 | 10K | 1 | |
| R1032 | ⚠ | ERF-2AK2R2 | METAL OXIDE 2W 2.2 +-10% | 1 | |
| R1033 | ⚠ | ERD25FJ472 | 4.7K | 1 | |
| R1034 | | ERDS2TJ334 | 330K | 1 | |
| R1035 | ⚠ | ERD25FJ150 | 15 | 1 | |
| R1036 | ⚠ | ERD25FJ220 | 22 | 1 | |
| R1037 | | ERDS2TJ562 | 5.6K | 1 | |
| R1038 | | ERDS2TJ471 | 470 | 1 | |
| R1039 | ⚠ | ERD25FJ330 | 33 | 1 | |
| R1040 | | ERDS2TJ333 | 33K | 1 | |
| R1041,1042 | ⚠ | ERD2FCGP121 | 120 +-2% | 2 | |
| | ⚠ | OR ERD2FCG121 | 120 +-2% | | |
| R1043 | | ERDS2TJ822 | 8.2K | 1 | |
| R1044 | | ERDS2TJ560 | 56 | 1 | |
| R1045 | | ERDS2TJ822 | 8.2K | 1 | |
| R1046 | | ERDS2TJ274 | 270K | 1 | |
| R1050 | | ERDS2TJ274 | 270K | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| R1051 | | ERDS2TJ104 | 100K | 1 | |
| R1052 | | ERDS2TJ473 | 47K | 1 | |
| R6001 | ⚠ | ERG1ANJ181 | METAL OXIDE 1W 180 | 1 | |
| | ⚠ | OR ERG1SJ181 | METAL OXIDE 1W 180 | | |
| R6002,6003 | | ERDS2TJ333 | 33K | 2 | |
| R6004 | | ERDS2TJ472 | 4.7K | 1 | |
| R6005 | | ERDS2TJ153 | 15K | 1 | |
| R6006 | | ERDS2TJ332 | 3.3K | 1 | |
| R6007 | | ERDS2TJ152 | 1.5K | 1 | |
| R6070 | | ERDS2TJ103 | 10K | 1 | |
| R6071 | | ERDS2TJ682 | 6.8K | 1 | |
| R6072,6073 | | ERDS2TJ103 | 10K | 2 | |
| R6075 | | ERDS2TJ103 | 10K | 1 | |
| R6085 | | ERDS2TJ563 | 56K | 1 | |
| R6100 | | ERDS2TJ103 | 10K | 1 | |
| R6112,6113 | | ERDS2TJ472 | 4.7K | 2 | |
| R6114,6115 | | ERDS2TJ102 | 1K | 2 | |
| R6129-6132 | | ERDS2TJ223 | 22K | 4 | |
| R6221,6222 | | ERDS2TJ223 | 22K | 2 | |
| R6223 | | ERDS2TJ472 | 4.7K | 1 | |
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| | | | CAPACITORS | | |
| C1001,1002 | ⚠ | ECQU2A683MN | POLYESTER 200V 0.068 +-20% | 2 | |
| C1003,1004 | ⚠ | VCKS0001 | CERAMIC 0.001 | 2 | |
| C1005 | ⚠ | ECES2GV151Y | ELECTROLYTIC 200V 150 | 1 | |
| C1006 | ⚠ | ECEA2EG4R7Y | ELECTROLYTIC 250V 4.7 | 1 | |
| | ⚠ | OR KM250VB4R7 | ELECTROLYTIC 250V 4.7 | | |
| C1007 | | ECEA1EG220 | ELECTROLYTIC 25V 22 | 1 | |
| | | OR KMA16VB-22 | ELECTROLYTIC 16V 22 | | |
| C1008 | ⚠ | VCKS0001 | CERAMIC 0.001 | 1 | |
| C1009 | ⚠ | KM50VB-22 | ELECTROLYTIC 50V 22 | 1 | |
| C1010 | | ECEA1HG2R2S | ELECTROLYTIC 50V 2.2 | 1 | |
| | | OR KMA50VB-2R2 | ELECTROLYTIC 50V 2.2 | | |
| C1011 | | ECQV05153JZ | POLYESTER 50V 0.015 +-5% | 1 | |
| C1012 | | ECEA1HU470X | ELECTROLYTIC 50V 47 | 1 | |
| | | OR SXE50VB-68 | ELECTROLYTIC 50V 68 | | |
| C1013,1014 | | ECEA1CU222X | ELECTROLYTIC 16V 2200 | 2 | |
| | | OR SXE16VB2200 | ELECTROLYTIC 16V 2200 | | |
| C1015 | | ECEA1HU470X | ELECTROLYTIC 50V 47 | 1 | |
| | | OR SXE50VB-68 | ELECTROLYTIC 50V 68 | | |
| C1016,1017 | | ECEA0JF102W | ELECTROLYTIC 6.3V 1000 | 2 | |
| | | OR SXE6.3VB1200 | ELECTROLYTIC 6.3V 1200 | | |
| C1019 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C1021,1022 | | ECEA1HG100S | ELECTROLYTIC 50V 10 | 2 | |
| | | OR KMA16VB-10 | ELECTROLYTIC 16V 10 | | |
| C1025 | | ECEA1CU222X | ELECTROLYTIC 16V 2200 | 1 | |
| | | OR SXE16VB2200 | ELECTROLYTIC 16V 2200 | | |
| C1026 | | ECEA0JF102W | ELECTROLYTIC 6.3V 1000 | 1 | |
| | | OR SXE6.3VB1200 | ELECTROLYTIC 6.3V 1200 | | |
| C1029 | | ECEA1HG100S | ELECTROLYTIC 50V 10 | 1 | |
| | | OR KMA16VB-10 | ELECTROLYTIC 16V 10 | | |
| C1030 | | ECEA1HG100S | ELECTROLYTIC 50V 10 | 1 | |
| | | OR KM50VB-10 | ELECTROLYTIC 50V 10 | | |
| C1031-1033 | | ECKW1H102KB5 | CERAMIC 50V 0.001 | 3 | |
| C1034 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C1035 | | ECQM1102KZ | POLYESTER 100V 0.001 | 1 | |
| C1039,1040 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 2 | |
| | | | +80%-20% | | |
| C1041 | | ECEA1AG101S | ELECTROLYTIC 10V 100 | 1 | |
| | | OR KM6.3VB-100 | ELECTROLYTIC 6.3V 100 | | |
| C1042 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C1043 | | ECQM1H103KV | POLYESTER 50V 0.01 | 1 | |
| | | OR ECQM1H103KZ | POLYESTER 50V 0.01 | | |
| C1044 | | ECKW1H471KB5 | CERAMIC 50V 470P | 1 | |
| | | | | | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| C1045 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C1049 | | KMA16VB-22 | ELECTROLYTIC 16V 22 | 1 | |
| C1050 | | ECKW1H471KB5 | CERAMIC 50V 470P | 1 | |
| C1051 | | ECEA1CS100 | ELECTROLYTIC 16V 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC 16V 10 | | |
| C6001 | | ECEA0JS221 | ELECTROLYTIC 6.3V 220 | 1 | |
| | | OR ECEA0JU221 | ELECTROLYTIC 6.3V 220 | | |
| C6008 | | EECW5R5F473 | GOLD 5.5V 0.047F | 1 | |
| C6015,6016 | | ECCW1H330JC5 | CERAMIC 50V 33P +-5% | 2 | |
| C6018 | | ECEA1CS470 | ELECTROLYTIC 16V 47 | 1 | |
| | | OR ECEA1CU470 | ELECTROLYTIC 16V 47 | | |
| C6020 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C6023 | | ECEA0JS330 | ELECTROLYTIC 6.3V 33 | 1 | |
| | | OR ECEA0JU330 | ELECTROLYTIC 6.3V 33 | | |
| C6221 | | ECEA1CS100 | ELECTROLYTIC 16V 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC 16V 10 | | |
| C6222 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | COILS | | |
| L1001 | ⚠ | ELP18D410 | 56 | 1 | |
| L1002 | | VLQS11H560K | 56 | 1 | |
| | | OR VLQS11H560M | 56 +-20% | | |
| L1003 | | VLQS0006 | 22 | 1 | |
| | | OR VLQS9H220M | 22 +-20% | | |
| L1004,1005 | | VLQS0007 | 100 | 2 | |
| | | OR VLQS9H101K | 100 | | |
| L1007 | | VLQS05R4R7K | 4.7 | 1 | |
| L6002 | | VLQS66R101K | 100 | 1 | |
| | | | | | |
| | | | | | |
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| | | | CRYSTAL OSCILLATOR | | |
| X6002 | | VSXS0009 | | 1 | |
| | | OR VSXS0011 | | | |
| | | | | | |
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| | | | | | |
| | | | PIN HEADERS | | |
| P1002 | | VJPS0011 | 3P | 1 | |
| P1004 | | VJPS0013 | 5P | 1 | |
| P1005 | | VJPS0022 | 7P | 1 | |
| P1006 | | VJPS0012 | 4P | 1 | |
| P6026 | | VJPS0099 | 3P | 1 | |
| P6029 | | VJPS0102 | 6P | 1 | |
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| | | | | | |
| | | | FUSE | | |
| F1001 | ⚠ | XBA2C30NU100 | 3A | 1 | |
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| | | | | | |
| | | | TRANSFORMER | | |
| T1001 | ⚠ | ETS35X80A | | 1 | |
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| | | | | | |
| | | | | | |
| | | | MISCELLANEOUS | | |
| | | TEL302-5X | CHECK TERMINAL | 2 | |
| | | TJG6320 | FUSE HOLDER | 2 | |
| | | VMTS0035 | CUSHION | 4 | |
| | | VMTS0044 | CUSHION | 1 | |
| | ⚠ | VMZS0130 | INSULATOR PLATE | 1 | |
| | | VMZS0139 | CAPACITOR CAP | 1 | |
| | | VSCS0403 | HEAT SINK PLATE | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| | | VSCS0436 | SHIELD CASE | 1 | |
| | | VSCS0437 | SHIELD CASE | 1 | |
| | | VSCS0542 | SHIELD CASE | 1 | |
| | | VSCS0544 | SHIELD CASE | 1 | |
| | | VSCS0604 | SHIELD CASE | 1 | |
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| | | | FM AUDIO C.B.A | | |
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| | | | INTEGRATED CIRCUITS | | |
| IC4201 | | AN6326N | | 1 | |
| IC4202 | | AN6558 | | 1 | |
| | | OR BA4558 | | | |
| IC4203 | | AN6391K | | 1 | |
| IC4204 | | VCR0087-1 | | 1 | |
| IC4205 | | AN6291 | | 1 | |
| IC4206 | | AN6558 | | 1 | |
| | | OR BA4558 | | | |
| IC4207,4208 | | TA7347P | | 2 | |
| IC4209 | | VCR0087-1 | | 1 | |
| IC4210 | | AN6391K | | 1 | |
| IC4211 | | HA14066B | | 1 | |
| | | OR TC4066B | | | |
| | | OR UPD4066BC | | | |
| | | OR MN4066B | | | |
| IC4213 | | AN6552 | | 1 | |
| | | OR BA4558 | | | |
| | | OR TA75557P | | | |
| IC4214,4215 | | TA7348P | | 2 | |
| IC4216 | | BA6138 | | 1 | |
| IC4217 | | AN6552 | | 1 | |
| | | OR BA4558 | | | |
| | | OR TA75557P | | | |
| IC4218,4219 | | VCRS0030 | | 2 | |
| | | | | | |
| | | | | | |
| | | | TRANSISTORS | | |
| Q4201-4203 | | 2SD638(Q,R,S) | | 3 | |
| Q4204 | | 2SC1684(Q,R,S) | | 1 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4205 | | 2SA564(R,S) | | 1 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q4206 | | 2SC1684(Q,R,S) | | 1 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4209,4210 | | 2SA564(R,S) | | 2 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q4211 | | 2SC1684(Q,R,S) | | 1 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4212 | | 2SD638(Q,R,S) | | 1 | |
| Q4213 | | 2SC1684(Q,R,S) | | 1 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4215 | | 2SC1684(Q,R,S) | | 1 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4216 | | 2SA564(R,S) | | 1 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| Q4217 | | 2SC2188 | | 1 | |
| Q4218 | | 2SD973(Q,R,S) | | 1 | |
| Q4219 | | 2SC2188 | | 1 | |
| Q4220 | | 2SA564(R,S) | | 1 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q4221 | | 2SC1684(Q,R,S) | | 1 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4222 | | 2SC2188 | | 1 | |
| Q4224,4225 | | 2SA564(R,S) | | 2 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q4240 | | 2SA564(R,S) | | 1 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q4241 | | 2SC1684(Q,R,S) | | 1 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4242,4243 | | 2SD655(E,F) | | 2 | |
| Q4244 | | 2SC1684(Q,R,S) | | 1 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4245 | | 2SA564(R,S) | | 1 | |
| | | OR | | | |
| | | 2SB641(Q,R,S) | | | |
| Q4246-4248 | | DTC124A | | 3 | |
| | | OR UN1212 | | | |
| Q4251 | | 2SC1684(Q,R,S) | | 1 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4253,4254 | | 2SC1684(Q,R,S) | | 2 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4255 | | 2SD1458 | | 1 | |
| Q4256 | | DTC124A | | 1 | |
| | | OR UN1212 | | | |
| Q4260,4261 | | 2SC1684(Q,R,S) | | 2 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4262 | | DTA114A | | 1 | |
| | | OR UN1111 | | | |
| Q4263 | | DTA144A | | 1 | |
| | | OR UN1113 | | | |
| Q4264 | | DTC114A | | 1 | |
| | | OR UN1211 | | | |
| Q4265 | | 2SD1205(Q,R) | | 1 | |
| Q4271 | | 2SC1684(R,S) | | 1 | |
| | | OR | | | |
| | | 2SC2021M(R,S) | | | |
| | | OR 2SD636(R,S) | | | |
| Q4272 | | DTA124A | | 1 | |
| | | OR UN1112 | | | |
| Q4273 | | 2SC1684(Q,R,S) | | 1 | |
| | | OR 2S21M(Q,R,S) | | | |
| | | OR | | | |
| | | 2SD636(Q,R,S) | | | |
| Q4274 | | DTC144A | | 1 | |
| | | OR UN1213 | | | |
| Q4275 | | 2SD973(R,S) | | 1 | |
| Q4276 | | 2SC1684(R,S) | | 1 | |
| | | OR | | | |
| | | 2SC2021M(R,S) | | | |
| | | OR 2SD636(R,S) | | | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | DIODES | | |
| D4201 | | DA203 | | 1 | |
| | | OR MA156 | | | |
| D4202,4203 | | MA165 | | 2 | |
| | | OR 1SS119 | | | |
| D4205,4206 | | MA165 | | 2 | |
| | | OR 1SS119 | | | |
| D4207 | | DA203 | | 1 | |
| | | OR MA156 | | | |
| D4209 | | MA165 | | 1 | |
| | | OR 1SS119 | | | |
| D4210 | | DAN201 | | 1 | |
| | | OR MA154 | | | |
| D4213 | | MA165 | | 1 | |
| | | OR 1SS119 | | | |
| D4215 | | DAN201 | | 1 | |
| | | OR MA154 | | | |
| D4216 | | MA165 | | 1 | |
| | | OR 1SS119 | | | |
| D4218 | | MA165 | | 1 | |
| | | OR 1SS119 | | | |
| D4220 | | MA165 | | 1 | |
| | | OR 1SS119 | | | |
| D4221 | | RD5.1JB2 | ZENER | 1 | |
| D4222 | | MA165 | | 1 | |
| | | OR 1SS119 | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | RESISTORS | | |
| R4201,4202 | | ERDS2TJ100 | 10 | 2 | |
| R4203,4204 | | ERDS2TJ332 | 3.3K | 2 | |
| R4205 | | ERDS2TJ223 | 22K | 1 | |
| R4206 | | ERDS2TJ152 | 1.5K | 1 | |
| R4207 | | ERDS2TJ100 | 10 | 1 | |
| R4208 | | ERDS2TJ102 | 1K | 1 | |
| R4209 | | ERDS2TJ222 | 2.2K | 1 | |
| R4210,4211 | | ERDS2TJ392 | 3.9K | 2 | |
| R4212 | | ERDS2TJ102 | 1K | 1 | |
| R4213 | | ERDS2TJ100 | 10 | 1 | |
| R4214 | | ERDS2TJ471 | 470 | 1 | |
| R4215 | | ERDS2TJ221 | 220 | 1 | |
| R4216 | | ERDS2TJ392 | 3.9K | 1 | |
| R4217 | | ERDS2TJ474 | 470K | 1 | |
| R4218 | | EVN3ACA00B53 | VARIABLE 5K | 1 | |
| R4219 | | ERDS2TJ562 | 5.6K | 1 | |
| R4221 | | ERDS2TJ562 | 5.6K | 1 | |
| R4222 | | ERDS2TJ181 | 180 | 1 | |
| R4223 | | EVN3ACA00B13 | VARIABLE 1K | 1 | |
| R4224 | | ERDS2TJ821 | 820 | 1 | |
| R4225 | | ERDS2TJ102 | 1K | 1 | |
| R4226 | | ERDS2TJ153 | 15K | 1 | |
| R4227 | | ERDS2TJ822 | 8.2K | 1 | |
| R4229 | | ERDS2TJ392 | 3.9K | 1 | |
| R4230 | | ERDS2TJ562 | 5.6K | 1 | |
| R4231 | | ERDS2TJ683 | 68K | 1 | |
| R4232 | | ERDS2TJ105 | 1M | 1 | |
| R4233 | | ERDS2TJ104 | 100K | 1 | |
| R4234 | | ERDS2TJ473 | 47K | 1 | |
| R4235 | | ERDS2TJ562 | 5.6K | 1 | |
| R4236 | | ERDS2TJ103 | 10K | 1 | |
| R4237 | | ERDS2TJ272 | 2.7K | 1 | |
| R4238 | | ERDS2TJ102 | 1K | 1 | |
| R4239 | | ERDS2TJ104 | 100K | 1 | |
| R4240 | | EVN3ACA00B54 | VARIABLE 50K | 1 | |
| R4241 | | ERDS2TJ102 | 1K | 1 | |
| R4242 | | ERDS2TJ103 | 10K | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| R4243-4245 | | ERDS2TJ223 | 22K | 3 | |
| R4246 | | ERDS2TJ104 | 100K | 1 | |
| R4248 | | ERDS2TJ152 | 1.5K | 1 | |
| R4249 | | ERDS2TJ151 | 150 | 1 | |
| R4250 | | ERDS2TJ223 | 22K | 1 | |
| R4251 | | ERDS2TJ333 | 33K | 1 | |
| R4252 | | ERDS2TJ272 | 2.7K | 1 | |
| R4253,4254 | | ERDS2TJ473 | 47K | 2 | |
| R4255 | | ERDS2TJ333 | 33K | 1 | |
| R4256 | | ERDS2TJ473 | 47K | 1 | |
| R4259 | | ERDS2TJ223 | 22K | 1 | |
| R4260 | | ERDS2TJ102 | 1K | 1 | |
| R4261 | | ERDS2TJ151 | 150 | 1 | |
| R4262 | | ERDS2TJ562 | 5.6K | 1 | |
| R4263 | | ERDS2TJ103 | 10K | 1 | |
| R4264 | | ERDS2TJ183 | 18K | 1 | |
| R4266 | | EVN3ACA00B23 | VARIABLE 2K | 1 | |
| R4267 | | ERDS2TJ272 | 2.7K | 1 | |
| R4268,4269 | | ERDS2TJ681 | 680 | 2 | |
| R4270 | | ERDS2TJ222 | 2.2K | 1 | |
| R4271,4272 | | ERDS2TJ152 | 1.5K | 2 | |
| R4273 | | ERDS2TJ222 | 2.2K | 1 | |
| R4274 | | ERDS2TJ103 | 10K | 1 | |
| R4275 | | ERDS2TJ392 | 3.9K | 1 | |
| R4276 | | ERDS2TJ821 | 820 | 1 | |
| R4277 | | ERDS2TJ151 | 150 | 1 | |
| R4278 | | ERDS2TJ392 | 3.9K | 1 | |
| R4279 | | ERDS2TJ102 | 1K | 1 | |
| R4280 | | ERDS2TJ272 | 2.7K | 1 | |
| R4281 | | ERDS2TJ392 | 3.9K | 1 | |
| R4282 | | ERDS2TJ821 | 820 | 1 | |
| R4283 | | ERDS2TJ390 | 39 | 1 | |
| R4284 | | ERDS2TJ102 | 1K | 1 | |
| R4285 | | ERDS2TJ272 | 2.7K | 1 | |
| R4286,4287 | | ERDS2TJ222 | 2.2K | 2 | |
| R4288 | | ERDS2TJ102 | 1K | 1 | |
| R4289 | | ERDS2TJ392 | 3.9K | 1 | |
| R4290,4291 | | ERDS2TJ152 | 1.5K | 2 | |
| R4293,4294 | | ERDS2TJ103 | 10K | 2 | |
| R4295 | | ERDS2TJ272 | 2.7K | 1 | |
| R4296 | | EVN3ACA00B13 | VARIABLE 1K | 1 | |
| R4297 | | ERDS2TJ153 | 15K | 1 | |
| R4298 | | ERDS2TJ822 | 8.2K | 1 | |
| R4299 | | ERDS2TJ331 | 330 | 1 | |
| R4300 | | ERDS2TJ681 | 680 | 1 | |
| R4301 | | ERDS2TJ102 | 1K | 1 | |
| R4303 | | ERDS2TJ272 | 2.7K | 1 | |
| R4304 | | EVN3ACA00B23 | VARIABLE 2K | 1 | |
| R4305 | | ERDS2TJ473 | 47K | 1 | |
| R4306 | | ERDS2TJ223 | 22K | 1 | |
| R4307 | | ERDS2TJ332 | 3.3K | 1 | |
| R4308 | | ERDS2TJ473 | 47K | 1 | |
| R4309 | | ERDS2TJ683 | 68K | 1 | |
| R4310 | | ERDS2TJ562 | 5.6K | 1 | |
| R4311 | | ERDS2TJ473 | 47K | 1 | |
| R4312,4313 | | ERDS2TJ104 | 100K | 2 | |
| R4314,4315 | | ERDS2TJ102 | 1K | 2 | |
| R4316 | | ERDS2TJ562 | 5.6K | 1 | |
| R4317 | | ERDS2TJ332 | 3.3K | 1 | |
| R4318 | | ERDS2TJ222 | 2.2K | 1 | |
| R4319 | | EVN3ACA00B25 | VARIABLE 200K | 1 | |
| R4321 | | ERDS2TJ102 | 1K | 1 | |
| R4323 | | ERDS2TJ102 | 1K | 1 | |
| R4325 | | ERDS2TJ103 | 10K | 1 | |
| R4326 | | ERDS2TJ122 | 1.2K | 1 | |
| R4327,4328 | | ERDS2TJ391 | 390 | 2 | |
| R4329 | | ERDS2TJ103 | 10K | 1 | |
| R4330,4331 | | ERDS2TJ104 | 100K | 2 | |
| R4335 | | EVN3ACA00B23 | VARIABLE 2K | 1 | |
| R4336 | | ERDS2TJ472 | 4.7K | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| R4337 | | ERDS2TJ153 | 15K | 1 | |
| R4338 | | EROS2TKG1001 | PRECISION METAL FILM 1K +-2% | 1 | |
| R4339 | | ERDS2TJ153 | 15K | 1 | |
| R4340 | | ERDS2TJ472 | 4.7K | 1 | |
| R4341 | | ERDS2TJ151 | 150 | 1 | |
| R4342 | | ERDS2TJ122 | 1.2K | 1 | |
| R4343 | | ERDS2TJ103 | 10K | 1 | |
| R4352 | | EVN3ACA00B25 | VARIABLE 200K | 1 | |
| R4355 | | ERDS2TJ222 | 2.2K | 1 | |
| R4356 | | ERDS2TJ562 | 5.6K | 1 | |
| R4357 | | ERDS2TJ272 | 2.7K | 1 | |
| R4358,4359 | | ERDS2TJ333 | 33K | 2 | |
| R4360 | | ERDS2TJ272 | 2.7K | 1 | |
| R4361 | | ERDS2TJ562 | 5.6K | 1 | |
| R4362,4363 | | ERDS2TJ473 | 47K | 2 | |
| R4364 | | ERDS2TJ101 | 100 | 1 | |
| R4365,4366 | | ERDS2TJ104 | 100K | 2 | |
| R4367 | | ERDS2TJ225 | 2.2M | 1 | |
| R4368 | | ERDS2TJ562 | 5.6K | 1 | |
| R4369 | | ERDS2TJ101 | 100 | 1 | |
| R4370,4371 | | ERDS2TJ104 | 100K | 2 | |
| R4372 | | ERDS2TJ225 | 2.2M | 1 | |
| R4373 | | ERDS2TJ183 | 18K | 1 | |
| R4374 | | ERDS2TJ473 | 47K | 1 | |
| R4375,4376 | | ERDS2TJ472 | 4.7K | 2 | |
| R4377 | | ERDS2TJ103 | 10K | 1 | |
| R4378 | | ERDS2TJ562 | 5.6K | 1 | |
| R4379 | | ERDS2TJ473 | 47K | 1 | |
| R4380-4383 | | ERDS2TJ103 | 10K | 4 | |
| R4384-4387 | | ERDS2TJ104 | 100K | 4 | |
| R4388-4393 | | ERDS2TJ562 | 5.6K | 6 | |
| R4394,4395 | | ERDS2TJ473 | 47K | 2 | |
| R4396 | | ERDS2TJ102 | 1K | 1 | |
| R4397 | | ERDS2TJ272 | 2.7K | 1 | |
| R4399 | | ERDS2TJ104 | 100K | 1 | |
| R4400 | | ERDS2TJ184 | 180K | 1 | |
| R4401-4403 | | ERDS2TJ103 | 10K | 3 | |
| R4404 | | ERDS2TJ473 | 47K | 1 | |
| R4405 | | ERDS2TJ102 | 1K | 1 | |
| R4406 | | ERDS2TJ224 | 220K | 1 | |
| R4407 | | ERDS2TJ103 | 10K | 1 | |
| R4408 | | ERDS2TJ682 | 6.8K | 1 | |
| R4409,4410 | | ERDS2TJ333 | 33K | 2 | |
| R4411 | | ERDS2TJ224 | 220K | 1 | |
| R4412 | | ERDS2TJ682 | 6.8K | 1 | |
| R4413 | | ERDS2TJ224 | 220K | 1 | |
| R4414 | | ERDS2TJ473 | 47K | 1 | |
| R4419 | | ERDS2TJ102 | 1K | 1 | |
| R4421,4422 | | ERDS2TJ473 | 47K | 2 | |
| R4423 | | ERDS2TJ273 | 27K | 1 | |
| R4424 | | ERDS2TJ222 | 2.2K | 1 | |
| R4425 | | ERDS2TJ273 | 27K | 1 | |
| R4426 | | ERDS2TJ222 | 2.2K | 1 | |
| R4429 | | ERDS2TJ104 | 100K | 1 | |
| R4430 | | ERDS2TJ332 | 3.3K | 1 | |
| R4431 | | ERDS2TJ472 | 4.7K | 1 | |
| R4432 | | ERDS2TJ562 | 5.6K | 1 | |
| R4433,4434 | | ERDS2TJ223 | 22K | 2 | |
| R4435 | | ERDS2TJ473 | 47K | 1 | |
| R4436 | | ERDS2TJ224 | 220K | 1 | |
| R4437 | | ERDS2TJ104 | 100K | 1 | |
| R4438 | | ERDS2TJ223 | 22K | 1 | |
| R4439 | | ERDS2TJ104 | 100K | 1 | |
| R4440 | | ERDS2TJ562 | 5.6K | 1 | |
| R4441 | | ERDS2TJ332 | 3.3K | 1 | |
| R4442 | | ERDS2TJ562 | 5.6K | 1 | |
| R4443 | | ERDS2TJ332 | 3.3K | 1 | |
| R4445 | | ERDS2TJ222 | 2.2K | 1 | |
| R4446,4447 | | ERDS2TJ123 | 12K | 2 | |
| | | | | | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| R4448 | ⚠ | ERG1ANJ470 | METAL OXIDE 1W 47 | 1 | |
| | ⚠ | OR ERG1SJ470 | METAL OXIDE 1W 47 | | |
| | ⚠ | OR ERG1SJ470 | METAL OXIDE 1W 47 | | |
| R4449 | | ERDS2TJ102 | 1K | 1 | |
| R4450 | | ERDS2TJ222 | 2.2K | 1 | |
| R4451,4452 | | ERDS2TJ154 | 150K | 2 | |
| TH4201,4202 | | ERTD2Z1K154M | THERMISTOR 150K | 2 | |
| | | | | | |
| | | | | | |
| | | | CAPACITORS | | |
| C4201,4202 | | ECCZ1H470JC | CERAMIC 50V 47P +-5% | 2 | |
| | | OR ECCZ1H470JC6 | CERAMIC 50V 47P +-5% | | |
| C4203,4204 | | ECKZ1H103ZV | CERAMIC 50V 0.01 | 2 | |
| | | | +80%-20% | | |
| C4205 | | ECQB1H103KH | POLYESTER 50V 0.01 | 1 | |
| C4206 | | ECEA0JK470 | ELECTROLYTIC 6.3V 47 | 1 | |
| C4207 | | ECEA1HN010S | ELECTROLYTIC 50V 1 | 1 | |
| C4208-4210 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 3 | |
| C4211 | | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C4212 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4213 | | ECQB1H103KH | POLYESTER 50V 0.01 | 1 | |
| C4214 | | ECEA1CK330 | ELECTROLYTIC 16V 33 | 1 | |
| C4215-4217 | | ECKZ1H103ZV | CERAMIC 50V 0.01 | 3 | |
| | | | +80%-20% | | |
| C4218 | | ECQB1H103KH | POLYESTER 50V 0.01 | 1 | |
| C4219 | | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C4220,4221 | | ECCZ1H680J | CERAMIC 50V 68P +-5% | 2 | |
| | | OR ECCZ1H680J6 | CERAMIC 50V 68P +-5% | | |
| C4222 | | ECCZ1H820JC5 | CERAMIC 50V 82P +-5% | 1 | |
| | | OR ECCZ1H820JC6 | CERAMIC 50V 82P +-5% | | |
| C4223 | | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C4224 | | ECQB1H103KH | POLYESTER 50V 0.01 | 1 | |
| C4225 | | ECCW1H101JC5 | CERAMIC 50V 100P +-5% | 1 | |
| C4226,4227 | | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 2 | |
| C4228 | | ECEA1AK220 | ELECTROLYTIC 10V 22 | 1 | |
| C4230 | | ECEA1HK2R2 | ELECTROLYTIC 50V 2.2 | 1 | |
| C4231 | | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4232 | | ECEA0JK220 | ELECTROLYTIC 6.3V 22 | 1 | |
| C4233 | | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4234 | | ECQB1H562KH | POLYESTER 50V 0.0056 | 1 | |
| C4235 | | ECEA0JK220 | ELECTROLYTIC 6.3V 22 | 1 | |
| C4236 | | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4237 | | ECQB1H103KH | POLYESTER 50V 0.01 | 1 | |
| C4238 | | ECKZ1H331KB | CERAMIC 50V 330P | 1 | |
| | | OR ECKZ1H331KB6 | CERAMIC 50V 330P | | |
| C4239 | | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4240 | | ECEA1CK101 | ELECTROLYTIC 16V 100 | 1 | |
| C4241 | | ECCZ1H330J | CERAMIC 50V 33P +-5% | 1 | |
| | | OR ECCZ1H330J6 | CERAMIC 50V 33P +-5% | | |
| C4242 | | ECQB1H183JZ | POLYESTER 50V 0.018 +-5% | 1 | |
| | | OR ECQV1H183JZ | POLYESTER 50V 0.018 +-5% | | |
| C4243 | | ECEA1CK330 | ELECTROLYTIC 16V 33 | 1 | |
| C4244,4245 | | ECEA1AK330 | ELECTROLYTIC 10V 33 | 2 | |
| C4246 | | ECCZ1H330J | CERAMIC 50V 33P +-5% | 1 | |
| | | OR ECCZ1H330J6 | CERAMIC 50V 33P +-5% | | |
| C4247 | | ECEA1CK101 | ELECTROLYTIC 16V 100 | 1 | |
| C4248 | | ECEA1AK330 | ELECTROLYTIC 10V 33 | 1 | |
| C4249 | | ECQB1H183JZ | POLYESTER 50V 0.018 +-5% | 1 | |
| | | OR ECQV1H183JZ | POLYESTER 50V 0.018 +-5% | | |
| C4250 | | ECEA0JK330 | ELECTROLYTIC 6.3V 33 | 1 | |
| C4251 | | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C4252 | | ECQB1H103KH | POLYESTER 50V 0.01 | 1 | |
| C4253,4254 | | ECKZ1H103ZV | CERAMIC 50V 0.01 | 2 | |
| | | | +80%-20% | | |
| C4255 | | ECQB1H103KH | POLYESTER 50V 0.01 | 1 | |
| C4256 | | ECEA0JK470 | ELECTROLYTIC 6.3V 47 | 1 | |

| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| C4257 | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C4259 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4260 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4261 | ECQB1H183JZ | POLYESTER 50V 0.018 +-5% | 1 | |
| | OR ECQV1H183JZ | POLYESTER 50V 0.018 +-5% | | |
| C4262 | ECEA50M3R3R | ELECTROLYTIC 50V 3.3 | 1 | |
| C4263 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4264 | ECQB1H123JZ | POLYESTER 50V 0.012 +-5% | 1 | |
| | OR ECQV1H123JZ | POLYESTER 50V 0.012 +-5% | | |
| C4265,4266 | ECEA50Z3R3 | ELECTROLYTIC 50V 3.3 | 2 | |
| C4267 | ECEA0JK470 | ELECTROLYTIC 6.3V 47 | 1 | |
| C4268 | ECQB1H123JZ | POLYESTER 50V 0.012 +-5% | 1 | |
| | OR ECQV1H123JZ | POLYESTER 50V 0.012 +-5% | | |
| C4269 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4270 | ECEA16M10R | ELECTROLYTIC 16V 10 | 1 | |
| C4271 | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4272 | ECQB1H123JZ | POLYESTER 50V 0.012 +-5% | 1 | |
| | OR ECQV1H123JZ | POLYESTER 50V 0.012 +-5% | | |
| C4273 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4274 | ECCW1H331J5 | CERAMIC 50V 330P +-5% | 1 | |
| C4275 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4276 | ECQB1H472JH | POLYESTER 50V 0.0047 +-5% | 1 | |
| C4277 | ECQB1H223JZ | POLYESTER 50V 0.022 +-5% | 1 | |
| | OR ECQV1H223JZ | POLYESTER 50V 0.022 +-5% | | |
| C4278 | ECEA50M3R3R | ELECTROLYTIC 50V 3.3 | 1 | |
| C4279 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4280 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4281 | ECQB1H183JZ | POLYESTER 50V 0.018 +-5% | 1 | |
| | OR ECQV1H183JZ | POLYESTER 50V 0.018 +-5% | | |
| C4282 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4283,4284 | ECCZ1H470J | CERAMIC 50V 47P +-5% | 2 | |
| | OR ECCZ1H470J6 | CERAMIC 50V 47P +-5% | | |
| C4285 | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C4286 | ECCZ1H820JC5 | CERAMIC 50V 82P +-5% | 1 | |
| | OR ECCZ1H820JC6 | CERAMIC 50V 82P +-5% | | |
| C4287 | ECQB1H102KH | POLYESTER 50V 0.001 | 1 | |
| C4288 | ECCW1H101JC5 | CERAMIC 50V 100P +-5% | 1 | |
| C4289 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4290 | ECEA1AK220 | ELECTROLYTIC 10V 22 | 1 | |
| C4292 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4293 | ECEA0JK220 | ELECTROLYTIC 6.3V 22 | 1 | |
| C4294 | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4295 | ECQB1H562KH | POLYESTER 50V 0.0056 | 1 | |
| C4296 | ECEA0JK220 | ELECTROLYTIC 6.3V 22 | 1 | |
| C4297 | ECKZ1H221KB | CERAMIC 50V 220P | 1 | |
| | OR ECKZ1H221KB6 | CERAMIC 50V 220P | | |
| C4298 | ECKZ1H331KB | CERAMIC 50V 330P | 1 | |
| | OR ECKZ1H331KB6 | CERAMIC 50V 330P | | |
| C4299 | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4300 | ECQB1H103KH | POLYESTER 50V 0.01 | 1 | |
| C4301 | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4302-4304 | ECEA1AK330 | ELECTROLYTIC 10V 33 | 3 | |
| C4305 | ECEA1CK220 | ELECTROLYTIC 16V 22 | 1 | |
| C4306 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4307 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4308 | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4309 | ECQV05104JB | POLYESTER 50V 0.1 +-5% | 1 | |
| | OR ECQV05104JC | POLYESTER 50V 0.1 +-5% | | |
| | OR ECQV1H104JZ | POLYESTER 50V 0.1 +-5% | | |
| C4310 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4311 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4312 | ECQV05104JB | POLYESTER 50V 0.1 +-5% | 1 | |
| | OR ECQV05104JC | POLYESTER 50V 0.1 +-5% | | |
| | OR ECQV1H104JZ | POLYESTER 50V 0.1 +-5% | | |
| C4313 | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4314-4316 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 3 | |
| C4317 | ECCZ1H820J | CERAMIC 50V 82P +-5% | 1 | |
| | OR ECCZ1H820J6 | CERAMIC 50V 82P +-5% | | |

| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| C4318 | ECEA1CK220 | ELECTROLYTIC 16V 22 | 1 | |
| C4319-4322 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 4 | |
| C4323 | ECCZ1H820J | CERAMIC 50V 82P +-5% | 1 | |
| | OR ECCZ1H820J6 | CERAMIC 50V 82P +-5% | | |
| C4324 | ECEA1CK220 | ELECTROLYTIC 16V 22 | 1 | |
| C4325,4326 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 2 | |
| C4327,4328 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 2 | |
| C4331,4332 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 2 | |
| C4335 | ECEA1AK470 | ELECTROLYTIC 10V 47 | 1 | |
| C4337 | ECEA1CK330 | ELECTROLYTIC 16V 33 | 1 | |
| C4338 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4339 | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C4340 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4341 | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C4342 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4343 | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C4344 | ECCZ1H820J | CERAMIC 50V 82P +-5% | 1 | |
| | OR ECCZ1H820J6 | CERAMIC 50V 82P +-5% | | |
| C4345 | QCEA1CSS221G | ELECTROLYTIC 16V 220 | 1 | |
| | OR SCEA1CSS221 | ELECTROLYTIC 16V 220 | | |
| C4346 | ECEA1EK4R7 | ELECTROLYTIC 25V 4.7 | 1 | |
| C4347-4349 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 3 | |
| C4350 | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C4351 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4352 | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C4353 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4354 | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C4355 | ECCZ1H820J | CERAMIC 50V 82P +-5% | 1 | |
| | OR ECCZ1H820J6 | CERAMIC 50V 82P +-5% | | |
| C4357 | ECKZ1H471KB | CERAMIC 50V 470P | 1 | |
| | OR ECKZ1H471KB6 | CERAMIC 50V 470P | | |
| C4359,4360 | VCYD1C104MX | CERAMIC 16V 0.1 +-20% | 2 | |
| C4361 | ECQB1H222KH | POLYESTER 50V 0.0022 | 1 | |
| C4362 | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C4363 | ECQB1H222KH | POLYESTER 50V 0.0022 | 1 | |
| C4364 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4365 | ECEA16M10R | ELECTROLYTIC 16V 10 | 1 | |
| C4366 | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4367 | ECQB1H123JZ | POLYESTER 50V 0.012 +-5% | 1 | |
| | OR ECQV1H123JZ | POLYESTER 50V 0.012 +-5% | | |
| C4368,4369 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 2 | |
| C4370 | ECQB1H223JZ | POLYESTER 50V 0.022 +-5% | 1 | |
| | OR ECQV1H223JZ | POLYESTER 50V 0.022 +-5% | | |
| C4371 | ECKZ1H103ZV | CERAMIC 50V 0.01 | 1 | |
| | | +80%-20% | | |
| C4372 | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C4373 | ECEA1EK3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| C4374 | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C4375 | ECQB1H472JH | POLYESTER 50V 0.0047 +-5% | 1 | |
| C4376 | ECCW1H331J5 | CERAMIC 50V 330P +-5% | 1 | |
| C4377 | ECKZ1H221KB | CERAMIC 50V 220P | 1 | |
| | OR ECKZ1H221KB6 | CERAMIC 50V 220P | | |
| C4378,4379 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 2 | |
| C4380 | ECEA0JK101 | ELECTROLYTIC 6.3V 100 | 1 | |
| C4381 | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C4383 | ECEA1HK2R2 | ELECTROLYTIC 50V 2.2 | 1 | |
| C4386 | ECEA1CK101 | ELECTROLYTIC 16V 100 | 1 | |
| C4387,4388 | ECQB1H103KH | POLYESTER 50V 0.01 | 2 | |
| C4389 | ECEA1EK4R7 | ELECTROLYTIC 25V 4.7 | 1 | |
| C4390 | ECEA1CK101 | ELECTROLYTIC 16V 100 | 1 | |
| C4391,4392 | ECEA1CK100 | ELECTROLYTIC 16V 10 | 2 | |

| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| | | | | |
| | | FILTERS | | |
| FL4201,4202 | VLF0305 | | 2 | |
| FL4203 | VLF0280 | | 1 | |
| FL4204 | VLF0281 | | 1 | |
| | | | | |
| | | | | |
| | | | | |
| | | COILS | | |
| L4201,4202 | VLQEL05R101K | 100 | 2 | |
| L4203 | VLQEL05R471K | 470 | 1 | |
| L4204 | VLQEL05R101K | 100 | 1 | |
| L4205 | VLQEL05R121K | 120 | 1 | |
| L4207 | VLQEL05R101K | 100 | 1 | |
| L4209 | VLQEL05R101K | 100 | 1 | |
| L4210,4211 | VLPS0007 | 1.5 | 2 | |
| | | | | |
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| | | | | |
| | | PIN HEADERS | | |
| P4201 | VJPS0035 | 4P | 1 | |
| P4202 | VJPS0039 | 8P | 1 | |
| P4203 | VJPS0033 | 2P | 1 | |
| P4204 | VJPS0035 | 4P | 1 | |
| P4205 | VJPS0034 | 3P | 1 | |
| P4206 | VJPS0041 | 10P | 1 | |
| P4207 | VJPS0037 | 6P | 1 | |
| P4208 | VJPS0043 | 12P | 1 | |
| P4209 | VJPS0037 | 6P | 1 | |
| P4210 | VJPS0036 | 5P | 1 | |
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| | | | | |
| | | MISCELLANEOUS | | |
| | VMTS0035 | CUSHION | 1 | |
| | VSCS0462 | SHIELD CASE | 1 | |
| | VSCS0464 | SHIELD CASE | 1 | |
| | VSCS0602 | SHIELD CASE | 1 | |
| | VZFS0006 | CLAMPER | 2 | |
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| | | NORMAL AUDIO C.B.A | | |
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| | | INTEGRATED CIRCUITS | | |
| IC4001 | UPC1513HA | | 1 | |
| | OR UPC1519HA | | | |
| IC4002 | AN6209K | | 1 | |
| IC4003 | AN90C21 | | 1 | |
| IC4004 | HA12045 | | 1 | |
| IC4005 | UPC1513HA | | 1 | |
| | OR UPC1519HA | | | |
| IC4006 | AN6209K | | 1 | |
| IC4007 | AN90C21 | | 1 | |
| | | | | |
| | | | | |
| | | TRANSISTORS | | |
| Q4001 | 2SD636(R,S) | | 1 | |
| Q4002 | 2SD637(Q,R,S) | | 1 | |
| Q4003,4004 | 2SD636(Q,R,S) | | 2 | |
| Q4007,4008 | 2SD636(Q,R,S) | | 2 | |
| Q4009 | 2SB641(R,S) | | 1 | |
| Q4011 | 2SD636(Q,R,S) | | 1 | |
| Q4012,4013 | 2SD1330(R,S,T) | | 2 | |
| Q4014,4015 | 2SD636(Q,R,S) | | 2 | |
| Q4016,4017 | 2SB641(R,S) | | 2 | |
| Q4018,4019 | 2SD636(Q,R,S) | | 2 | |
| Q4020 | 2SB641(R,S) | | 1 | |

| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
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| | | RESISTORS | | |
| R4001 | ERDS2TJ333 | 33K | 1 | |
| R4002 | ERDS2TJ181 | 180 | 1 | |
| R4003 | ERDS2TJ101 | 100 | 1 | |
| R4004 | ERDS2TJ331 | 330 | 1 | |
| R4005 | EVN38CA00B53 | VARIABLE 5K | 1 | |
| R4006 | ERDS2TJ124 | 120K | 1 | |
| R4007 | ERDS2TJ103 | 10K | 1 | |
| R4008,4009 | ERDS2TJ472 | 4.7K | 2 | |
| R4010 | EVN38CA00B54 | VARIABLE 50K | 1 | |
| R4011 | ERDS2TJ332 | 3.3K | 1 | |
| R4012 | ERDS2TJ152 | 1.5K | 1 | |
| R4018 | ERDS2TJ821 | 820 | 1 | |
| R4019 | ERDS2TJ822 | 8.2K | 1 | |
| R4020 | ERDS2TJ223 | 22K | 1 | |
| R4021 | ERDS2TJ102 | 1K | 1 | |
| R4022 | ERDS2TJ223 | 22K | 1 | |
| R4023 | ERDS2TJ183 | 18K | 1 | |
| R4024 | ERDS2TJ271 | 270 | 1 | |
| R4025 | EVN38CA00B24 | VARIABLE 20K | 1 | |
| R4026 | ERDS2TJ101 | 100 | 1 | |
| R4027 | ERDS2TJ331 | 330 | 1 | |
| R4028 | ERDS2TJ271 | 270 | 1 | |
| R4029 | ERDS2TJ152 | 1.5K | 1 | |
| R4030 | ERDS2TJ272 | 2.7K | 1 | |
| R4031 | ERDS2TJ332 | 3.3K | 1 | |
| R4032 | ERDS2TJ330 | 33 | 1 | |
| R4033 | ERDS2TJ473 | 47K | 1 | |
| R4034 | ERDS2TJ682 | 6.8K | 1 | |
| R4035 | ERDS2TJ104 | 100K | 1 | |
| R4036 | ERDS2TJ101 | 100 | 1 | |
| R4037 | ERDS2TJ183 | 18K | 1 | |
| R4038 | ERDS2TJ223 | 22K | 1 | |
| R4039 | ERDS2TJ100 | 10 | 1 | |
| R4044,4045 | ERDS2TJ102 | 1K | 2 | |
| R4051 | ERDS2TJ333 | 33K | 1 | |
| R4052 | ERDS2TJ181 | 180 | 1 | |
| R4053 | ERDS2TJ101 | 100 | 1 | |
| R4054 | ERDS2TJ331 | 330 | 1 | |
| R4055 | EVN38CA00B53 | VARIABLE 5K | 1 | |
| R4056 | ERDS2TJ124 | 120K | 1 | |
| R4057 | ERDS2TJ103 | 10K | 1 | |
| R4058,4059 | ERDS2TJ472 | 4.7K | 2 | |
| R4060 | EVN38CA00B54 | VARIABLE 50K | 1 | |
| R4061 | ERDS2TJ332 | 3.3K | 1 | |
| R4062 | ERDS2TJ152 | 1.5K | 1 | |
| R4068 | ERDS2TJ821 | 820 | 1 | |
| R4069 | ERDS2TJ822 | 8.2K | 1 | |
| R4070 | ERDS2TJ223 | 22K | 1 | |
| R4071 | ERDS2TJ102 | 1K | 1 | |
| R4072 | ERDS2TJ223 | 22K | 1 | |
| R4073 | ERDS2TJ183 | 18K | 1 | |
| R4074 | ERDS2TJ271 | 270 | 1 | |
| R4075 | EVN38CA00B24 | VARIABLE 20K | 1 | |
| R4076 | ERDS2TJ101 | 100 | 1 | |
| R4077 | ERDS2TJ331 | 330 | 1 | |
| R4078 | ERDS2TJ271 | 270 | 1 | |
| R4079 | ERDS2TJ152 | 1.5K | 1 | |
| R4080 | ERDS2TJ272 | 2.7K | 1 | |
| R4081 | ERDS2TJ332 | 3.3K | 1 | |
| R4082 | ERDS2TJ330 | 33 | 1 | |
| R4083 | ERDS2TJ473 | 47K | 1 | |
| R4084 | ERDS2TJ682 | 6.8K | 1 | |
| R4085 | ERDS2TJ104 | 100K | 1 | |
| R4086 | ERDS2TJ101 | 100 | 1 | |
| R4087 | ERDS2TJ183 | 18K | 1 | |
| R4088 | ERDS2TJ223 | 22K | 1 | |

| Ref. No. | | Part No. | Part Name & Description | | | Pcs / Set | Remarks |
|---|---|---|---|---|---|---|---|
| R4089 | | ERDS2TJ100 | | | 10 | 1 | |
| R4101 | | ERDS2TJ222 | | | 2.2K | 1 | |
| R4102 | | ERDS2TJ103 | | | 10K | 1 | |
| R4103 | | ERDS2TJ562 | | | 5.6K | 1 | |
| R4104 | | ERDS2TJ822 | | | 8.2K | 1 | |
| R4105 | | ERDS2TJ220 | | | 22 | 1 | |
| R4106 | | ERDS2TJ333 | | | 33K | 1 | |
| R4107 | | ERDS2TJ103 | | | 10K | 1 | |
| R4108 | | ERDS2TJ472 | | | 4.7K | 1 | |
| R4109 | | ERDS2TJ223 | | | 22K | 1 | |
| R4110-4112 | | ERDS2TJ562 | | | 5.6K | 3 | |
| R4126,4127 | | ERDS2TJ822 | | | 8.2K | 2 | |
| R4128 | | ERDS2TJ681 | | | 680 | 1 | |
| R4129-4135 | | ERDS2TJ223 | | | 22K | 7 | |
| R4136,4137 | | ERDS2TJ103 | | | 10K | 2 | |
| R4138,4139 | | ERDS2TJ473 | | | 47K | 2 | |
| R4140,4141 | | ERDS2TJ222 | | | 2.2K | 2 | |
| R4142,4143 | | ERDS2TJ223 | | | 22K | 2 | |
| R4144 | | ERDS2TJ393 | | | 39K | 1 | |
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| | | | CAPACITORS | | | | |
| C4002 | | ECKW1H471KB5 | CERAMIC | 50V | 470P | 1 | |
| C4003 | | ECEA50M1R | ELECTROLYTIC | 50V | 1 | 1 | |
| C4004 | | ECKW1H471KB5 | CERAMIC | 50V | 470P | 1 | |
| C4005 | | ECEA50ZR33 | ELECTROLYTIC | 50V | 0.33 | 1 | |
| C4006 | | ECEA50ZR22 | ELECTROLYTIC | 50V | 0.22 | 1 | |
| C4007 | | ECEA1CS220 | ELECTROLYTIC | 16V | 22 | 1 | |
| | | OR ECEA1CU220 | ELECTROLYTIC | 16V | 22 | | |
| C4008 | | ECQB1H333JZ | POLYESTER | 50V | 0.033 +-5% | 1 | |
| | | OR ECQV05333JZ | POLYESTER | 50V | 0.033 +-5% | | |
| | | OR ECQV1H333JZ | POLYESTER | 50V | 0.033 +-5% | | |
| C4009 | | ECEA1CS100 | ELECTROLYTIC | 16V | 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC | 16V | 10 | | |
| C4010 | | ECEA50ZR33 | ELECTROLYTIC | 50V | 0.33 | 1 | |
| C4011 | | ECEA1CS100 | ELECTROLYTIC | 16V | 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC | 16V | 10 | | |
| C4015 | | ECKW1H102KB5 | CERAMIC | 50V | 0.001 | 1 | |
| C4016 | | ECEA1CS100 | ELECTROLYTIC | 16V | 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC | 16V | 10 | | |
| C4017 | | ECEA1CS220 | ELECTROLYTIC | 16V | 22 | 1 | |
| | | OR ECEA1CU220 | ELECTROLYTIC | 16V | 22 | | |
| C4018 | | ECEA1CS330 | ELECTROLYTIC | 16V | 33 | 1 | |
| | | OR ECEA1CU330 | ELECTROLYTIC | 16V | 33 | | |
| C4019 | | ECEA1HS010 | ELECTROLYTIC | 50V | 1 | 1 | |
| | | OR ECEA1HU010 | ELECTROLYTIC | 50V | 1 | | |
| C4020 | | ECQV05563JZ | POLYESTER | 50V | 0.056 +-5% | 1 | |
| | | OR ECQV1H563JZ | POLYESTER | 50V | 0.056 +-5% | | |
| C4021 | | ECEA1AS330 | ELECTROLYTIC | 10V | 33 | 1 | |
| | | OR ECEA1AU330 | ELECTROLYTIC | 10V | 33 | | |
| C4022,4023 | | ECEA50Z0R1 | ELECTROLYTIC | 50V | 0.1 | 2 | |
| C4024 | | ECEA1AS330 | ELECTROLYTIC | 10V | 33 | 1 | |
| | | OR ECEA1AU330 | ELECTROLYTIC | 10V | 33 | | |
| C4025 | | VCYW1C104MX | CERAMIC | 16V | 0.1 +-20% | 1 | |
| C4026 | | ECEA1CKN100 | ELECTROLYTIC | 16V | 10 | 1 | |
| C4027 | | ECEA1HS010 | ELECTROLYTIC | 50V | 1 | 1 | |
| | | OR ECEA1HU010 | ELECTROLYTIC | 50V | 1 | | |
| C4028 | | ECEA1CK100 | ELECTROLYTIC | 16V | 10 | 1 | |
| C4029 | | ECEA1CKN100 | ELECTROLYTIC | 16V | 10 | 1 | |
| C4030 | | ECQB1H333JZ | POLYESTER | 50V | 0.033 +-5% | 1 | |
| | | OR ECQV05333JZ | POLYESTER | 50V | 0.033 +-5% | | |
| | | OR ECQV1H333JZ | POLYESTER | 50V | 0.033 +-5% | | |
| C4031 | | ECQB1H472JZ | POLYESTER | 50V | 0.0047 +-5% | 1 | |
| | | OR ECQM1H472JV | POLYESTER | 50V | 0.0047 +-5% | | |
| C4032 | | ECEA1EKL4R7 | ELECTROLYTIC | 25V | 4.7 | 1 | |
| C4033 | | ECEA1CKN100 | ELECTROLYTIC | 16V | 10 | 1 | |
| C4034 | | ECQV05473JZ | POLYESTER | 50V | 0.047 +-5% | 1 | |
| | | OR ECQV1H473JZ | POLYESTER | 50V | 0.047 +-5% | | |

| Ref. No. | | Part No. | Part Name & Description | | | Pcs / Set | Remarks |
|---|---|---|---|---|---|---|---|
| C4035 | | ECQB1H183JZ | POLYESTER | 50V | 0.018 +-5% | 1 | |
| | | OR ECQV05183JZ | POLYESTER | 50V | 0.018 +-5% | | |
| | | OR ECQV1H183JZ | POLYESTER | 50V | 0.018 +-5% | | |
| C4036 | | ECEA1HK010 | ELECTROLYTIC | 50V | 1 | 1 | |
| C4037 | | ECSF1CD224KD | TANTALUM | 16V | 0.22 | 1 | |
| C4038 | | ECSF1CD684KD | TANTALUM | 16V | 0.68 | 1 | |
| C4051 | | ECEA0JK221 | ELECTROLYTIC | 6.3V | 220 | 1 | |
| C4052 | | ECKW1H471KB5 | CERAMIC | 50V | 470P | 1 | |
| C4053 | | ECEA50M1R | ELECTROLYTIC | 50V | 1 | 1 | |
| C4054 | | ECKW1H471KB5 | CERAMIC | 50V | 470P | 1 | |
| C4055 | | ECEA50ZR33 | ELECTROLYTIC | 50V | 0.33 | 1 | |
| C4056 | | ECEA50ZR22 | ELECTROLYTIC | 50V | 0.22 | 1 | |
| C4057 | | ECEA1CS220 | ELECTROLYTIC | 16V | 22 | 1 | |
| | | OR ECEA1CU220 | ELECTROLYTIC | 16V | 22 | | |
| C4058 | | ECQB1H333JZ | POLYESTER | 50V | 0.033 +-5% | 1 | |
| | | OR ECQV05333JZ | POLYESTER | 50V | 0.033 +-5% | | |
| | | OR ECQV1H333JZ | POLYESTER | 50V | 0.033 +-5% | | |
| C4059 | | ECEA1CS100 | ELECTROLYTIC | 16V | 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC | 16V | 10 | | |
| C4060 | | ECEA50ZR33 | ELECTROLYTIC | 50V | 0.33 | 1 | |
| C4061 | | ECEA1CS100 | ELECTROLYTIC | 16V | 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC | 16V | 10 | | |
| C4065 | | ECKW1H102KB5 | CERAMIC | 50V | 0.001 | 1 | |
| C4066 | | ECEA1CS100 | ELECTROLYTIC | 16V | 10 | 1 | |
| | | OR ECEA1CU100 | ELECTROLYTIC | 16V | 10 | | |
| C4067 | | ECEA1CS220 | ELECTROLYTIC | 16V | 22 | 1 | |
| | | OR ECEA1CU220 | ELECTROLYTIC | 16V | 22 | | |
| C4068 | | ECEA1CS330 | ELECTROLYTIC | 16V | 33 | 1 | |
| | | OR ECEA1CU330 | ELECTROLYTIC | 16V | 33 | | |
| C4069 | | ECEA1HS010 | ELECTROLYTIC | 50V | 1 | 1 | |
| | | OR ECEA1HU010 | ELECTROLYTIC | 50V | 1 | | |
| C4070 | | ECQV05563JZ | POLYESTER | 50V | 0.056 +-5% | 1 | |
| | | OR ECQV1H563JZ | POLYESTER | 50V | 0.056 +-5% | | |
| C4071 | | ECEA1AS330 | ELECTROLYTIC | 10V | 33 | 1 | |
| | | OR ECEA1AU330 | ELECTROLYTIC | 10V | 33 | | |
| C4072,4073 | | ECEA50Z0R1 | ELECTROLYTIC | 50V | 0.1 | 2 | |
| C4074 | | ECEA1AS330 | ELECTROLYTIC | 10V | 33 | 1 | |
| | | OR ECEA1AU330 | ELECTROLYTIC | 10V | 33 | | |
| C4075 | | VCYW1C104MX | CERAMIC | 16V | 0.1 +-20% | 1 | |
| C4076 | | ECEA1CKN100 | ELECTROLYTIC | 16V | 10 | 1 | |
| C4077 | | ECEA1HS010 | ELECTROLYTIC | 50V | 1 | 1 | |
| | | OR ECEA1HU010 | ELECTROLYTIC | 50V | 1 | | |
| C4078 | | ECEA1CK470 | ELECTROLYTIC | 16V | 47 | 1 | |
| C4079 | | ECEA1CKN100 | ELECTROLYTIC | 16V | 10 | 1 | |
| C4080 | | ECQB1H333JZ | POLYESTER | 50V | 0.033 +-5% | 1 | |
| | | OR ECQV05333JZ | POLYESTER | 50V | 0.033 +-5% | | |
| | | OR ECQV1H333JZ | POLYESTER | 50V | 0.033 +-5% | | |
| C4081 | | ECQB1H472JZ | POLYESTER | 50V | 0.0047 +-5% | 1 | |
| | | OR ECQM1H472JV | POLYESTER | 50V | 0.0047 +-5% | | |
| C4082 | | ECEA1EKL4R7 | ELECTROLYTIC | 25V | 4.7 | 1 | |
| C4083 | | ECEA1CKN100 | ELECTROLYTIC | 16V | 10 | 1 | |
| C4084 | | ECQV05473JZ | POLYESTER | 50V | 0.047 +-5% | 1 | |
| | | OR ECQV1H473JZ | POLYESTER | 50V | 0.047 +-5% | | |
| C4085 | | ECQB1H183JZ | POLYESTER | 50V | 0.018 +-5% | 1 | |
| | | OR ECQV05183JZ | POLYESTER | 50V | 0.018 +-5% | | |
| | | OR ECQV1H183JZ | POLYESTER | 50V | 0.018 +-5% | | |
| C4086 | | ECEA1HK010 | ELECTROLYTIC | 50V | 1 | 1 | |
| C4087 | | ECSF1CD224KD | TANTALUM | 16V | 0.22 | 1 | |
| C4088 | | ECSF1CD684KD | TANTALUM | 16V | 0.68 | 1 | |
| C4101 | | ECEA1CK101 | ELECTROLYTIC | 16V | 100 | 1 | |
| C4102 | | ECEA1CS470 | ELECTROLYTIC | 16V | 47 | 1 | |
| | | OR ECEA1CU470 | ELECTROLYTIC | 16V | 47 | | |
| C4103 | | ECEA1HSR47 | ELECTROLYTIC | 50V | 0.47 | 1 | |
| | | OR ECEA1HUR47 | ELECTROLYTIC | 50V | 0.47 | | |
| C4104,4105 | | ECKW1H102KB5 | CERAMIC | 50V | 0.001 | 2 | |
| C4106 | | ECEA1CS220 | ELECTROLYTIC | 16V | 22 | 1 | |
| | | OR ECEA1CU220 | ELECTROLYTIC | 16V | 22 | | |
| C4107 | | VCYW1E103KX | CERAMIC | 25V | 0.01 | 1 | |
| C4108 | | VCYW1E333KX | CERAMIC | 25V | 0.033 | 1 | |
| C4109 | | ECQP1332JZ | POLYESTER | 100V | 0.0033 +-5% | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| C4110,4111 | | ECRHC060G11 | TRIMMER 60P | 2 | |
| | | OR ECV1ZW60X64 | TRIMMER 60P | | |
| | | OR VCVSAW60X1R | TRIMMER 60P | | |
| C4123 | | ECEA1HS2R2 | ELECTROLYTIC 50V 2.2 | 1 | |
| | | OR ECEA1HU2R2 | ELECTROLYTIC 50V 2.2 | | |
| C4124 | | VCYW1E333KX | CERAMIC 25V 0.033 | 1 | |
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| | | | FILTERS | | |
| FL4001,4002 | | VLFS0002 | | 2 | |
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| | | | COILS | | |
| L4001 | | VLQS78F222K | 2.2M | 1 | |
| L4002 | | VLQS67F222K | 2.2M | 1 | |
| L4003 | | VLQS78F222K | 2.2M | 1 | |
| L4004 | | VLQS67F222K | 2.2M | 1 | |
| L4005,4006 | | VLQS66F471K | 470 | 2 | |
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| | | | PIN HEADER | | |
| P4001 | | VJPS0104 | 8P | 1 | |
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| | | | TRANSFORMER | | |
| T4001 | | ELM7Q020E | | 1 | |
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| | | | MISCELLANEOUS | | |
| | | VMTS0035 | CUSHION | 6 | |
| | | VSCS0439 | SHIELD CASE | 1 | |
| | | VSCS0440 | SHIELD CASE | 1 | |
| | | VSCS0441 | SHIELD CASE | 1 | |
| | | VZFS0006 | CLAMPER | 1 | |
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| | | | OPERATION/AUDIO LEVEL METER | | |
| | | | C.B.A | | |
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| | | | INTEGRATED CIRCUITS | | |
| IC7801,7802 | | BA668A | | 2 | |
| IC7803 | | BA222 | | 1 | |
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| | | | DIODES | | |
| D6301-6308 | | MA165 | | 8 | |
| | | OR 1SS119 | | | |
| D7808-7812 | | BR5608S | LED | 5 | |
| D7901 | | LN31GCPHL | LED | 1 | |
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| | | | RESISTORS | | |
| R6301 | | ERDS2TJ392 | 3.9K | 1 | |
| R7804 | | ERDS2TJ103 | 10K | 1 | |
| R7805 | | ERDS2TJ272 | 2.7K | 1 | |
| R7806 | | ERDS2TJ561 | 560 | 1 | |
| R7807 | | ERDS2TJ394 | 390K | 1 | |
| R7808 | | ERDS2TJ272 | 2.7K | 1 | |
| R7809 | | ERDS2TJ561 | 560 | 1 | |
| R7810 | | ERDS2TJ394 | 390K | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| R7811 | | ERDS2TJ103 | 10K | 1 | |
| R7814 | | ERDS2TJ333 | 33K | 1 | |
| R7815 | | ERDS2TJ274 | 270K | 1 | |
| R7816 | | ERDS2TJ153 | 15K | 1 | |
| R7817-7819 | | ERDS2TJ182 | 1.8K | 3 | |
| R7820,7821 | | VRVS0001 | VARIABLE 5K | 2 | |
| R7905 | | ERDS2TJ271 | 270 | 1 | |
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| | | | CAPACITORS | | |
| C7801,7802 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 2 | |
| C7803 | | ECEA1EK4R7 | ELECTROLYTIC 25V 4.7 | 1 | |
| C7804 | | ECEA1CK330 | ELECTROLYTIC 16V 33 | 1 | |
| C7805 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C7806 | | ECEA1EK4R7 | ELECTROLYTIC 25V 4.7 | 1 | |
| C7807 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C7809 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
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| | | | SWITCHES | | |
| SW6301-6310 | | EVQ-QJ104K | PUSH | 10 | |
| SW7821 | | ESB-65143 | SELECT | 1 | |
| SW7901,7902 | | EVQQSR05K | PUSH | 2 | |
| SW7903 | | EVQ-QJ104K | PUSH | 1 | |
| SW7906 | | VSSS0031 | SELECT | 1 | |
| SW7907 | | EVQQSR05K | PUSH | 1 | |
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| | | | MISCELLANEOUS | | |
| | | VGMS0077 | LEVEL METER HOLDER | 1 | |
| | | VMDS0248 | LED SPACER | 1 | |
| | | VMXS0036 | LED SPACER | 1 | |
| | | VMZS0141 | BARRIER | 1 | |
| DP7801 | | VSZS0027 | LEVEL METER DISPLAY TUBE | 1 | |
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| | | | PROGRAMMABLE TIMER C.B.A | | |
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| | | | INTEGRATED CIRCUITS | | |
| IC7501 | | UPD7538C-021 | | 1 | |
| | | OR UPD7538C-028 | | | |
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| | | | TRANSISTOR | | |
| Q7502 | | 2SD636(Q,R,S) | | 1 | |
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| | | | DIODES | | |
| DX7201 | | VCRS0037 | COMPLEX COMPONENT | 1 | |
| DX7202 | | VCRS0038 | COMPLEX COMPONENT | 1 | |
| DX7503-7505 | | VCRS0038 | COMPLEX COMPONENT | 3 | |
| D7215-7228 | | LN31GCPUHL | LED | 14 | |
| D7501 | | MA166 | | 1 | |
| D7502 | | RD9.1EB | ZENER | 1 | |
| D7504-7517 | | MA166 | | 14 | |
| D7542,7543 | | MA166 | | 2 | |
| D7545 | | RD20EB | ZENER | 1 | |
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| | | | RESISTORS | | |
| R7501,7502 | | ERDS2TJ104 | 100K | 2 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| R7505 | | ERDS2TJ222 | 2.2K | 1 | |
| R7508 | | ERDS2TJ682 | 6.8K | 1 | |
| R7509,7510 | | ERDS2TJ223 | 22K | 2 | |
| R7511 | | ERDS2TJ473 | 47K | 1 | |
| R7512-7515 | | ERDS2TJ223 | 22K | 4 | |
| R7516 | | ERDS2TJ224 | 220K | 1 | |
| R7517 | | ERDS2TJ221 | 220 | 1 | |
| R7518 | | ERDS2TJ102 | 1K | 1 | |
| R7519 | | ERDS2TJ391 | 390 | 1 | |
| R7520 | | ERDS2TJ122 | 1.2K | 1 | |
| R7521,7522 | | ERDS2TJ102 | 1K | 2 | |
| R7523 | | ERDS2TJ122 | 1.2K | 1 | |
| R7524 | | ERDS2TJ472 | 4.7K | 1 | |
| R7525,7526 | | ERDS2TJ331 | 330 | 2 | |
| R7527 | | ERDS2TJ472 | 4.7K | 1 | |
| R7530 | | ERDS2TJ102 | 1K | 1 | |
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| | | | CAPACITORS | | |
| C7501 | | ECEA0JS221 | ELECTROLYTIC 6.3V 220 | 1 | |
| | | OR ECEA0JU221 | ELECTROLYTIC 6.3V 220 | | |
| C7502 | | ECQV05224JZ | POLYESTER 50V 0.22 +-5% | 1 | |
| | | OR ECQV1H224JZ | POLYESTER 50V 0.22 +-5% | | |
| C7503 | | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C7505 | | VCYW1E473KX | CERAMIC 25V 0.047 | 1 | |
| C7506,7507 | | VCYSARH101KB | CERAMIC 50V 100P | 2 | |
| C7508 | | VCYSARH102KB | CERAMIC 50V 0.001 | 1 | |
| C7510 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C7513 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C7515 | | VCYD1C104MX | CERAMIC 16V 0.1 +-20% | 1 | |
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| | | | COIL | | |
| L7501 | | VLQS05R4R7K | 4.7 | 1 | |
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| | | | CRYSTAL OSCILLATOR | | |
| X7501 | | VSXS0007 | | 1 | |
| | | OR VSXS0008 | | | |
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| | | | PIN HEADER | | |
| P7505 | | VJPS0113 | 5P | 1 | |
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| | | | SWITCHES | | |
| SW7201-7214 | | EVQQSR05K | PUSH | 14 | |
| SW7503-7507 | | EVQ-QJ104K | PUSH | 5 | |
| SW7509,7510 | | VES0198 | SELECT | 2 | |
| | | OR VSSS0005 | SELECT | | |
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| | | | MISCELLANEOUS | | |
| | | VMDS0185 | LED HOLDER | 2 | |
| | | VMDS0223 | DISPLAY TUBE HOLDER | 1 | |
| D7501 | | VSZS0023 | DISPLAY TUBE | 1 | |
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| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
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| | | | CAPSTAN MOTOR DRIVE C.B.A | | |
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| | | | INTEGRATED CIRCUITS | | |
| IC2601 | | AN3821K | | 1 | |
| | | OR AN3822K | | | |
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| | | | RESISTORS | | |
| R2601 | ⚠ | ERX12ANJR68 | METAL OXIDE 1/2W 0.68 | 1 | |
| | ⚠ | OR ERX12SJR68 | METAL OXIDE 1/2W 0.68 | | |
| R2602 | | ERDS2TJ102 | 1K | 1 | |
| R2603 | | ERDS2TJ392 | 3.9K | 1 | |
| R2605 | | ERDS2TJ181 | 180 | 1 | |
| R2606-2608 | | ERDS2TJ224 | 220K | 3 | |
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| | | | CAPACITORS | | |
| C2601 | | ECEA1CK101 | ELECTROLYTIC 16V 100 | 1 | |
| C2602 | | ECQM1H473KV | POLYESTER 50V 0.047 | 1 | |
| | | OR ECQM1H473KZ | POLYESTER 50V 0.047 | | |
| C2603 | | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C2604-2606 | | ECEA1EKN2R2 | ELECTROLYTIC 25V 2.2 | 3 | |
| C2607-2609 | | ECKF1H472ZF | CERAMIC 50V 0.0047 +80%-20% | 3 | |
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| | | | PIN HEADER | | |
| P2601 | | VJPS0116 | 8P | 1 | |
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| | | | LUMINANCE C.B.A | | |
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| | | | INTEGRATED CIRCUITS | | |
| IC3101 | | AN3210K | | 1 | |
| IC3102 | | AN3320K | | 1 | |
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| | | | DIODES | | |
| D3101,3102 | | MA165 | | 2 | |
| | | OR 1SS119 | | | |
| D3104 | | EQA02-06 | ZENER | 1 | |
| | | OR EQA02-07 | ZENER | | |
| | | OR RD6.2EB | ZENER | | |
| | | OR RD6.8EB | ZENER | | |
| | | | | | |
| | | | | | |
| | | | RESISTORS | | |
| R3101-3103 | | EVNE4AA00B54 | VARIABLE 50K | 3 | |
| R3104 | | EVNE4AA00B14 | VARIABLE 10K | 1 | |
| R3105 | | ERDS2TJ103 | 10K | 1 | |
| R3106 | | ERDS2TJ122 | 1.2K | 1 | |
| R3107 | | ERDS2TJ563 | 56K | 1 | |
| R3110 | | ERDS2TJ332 | 3.3K | 1 | |
| R3111 | | ERDS2TJ822 | 8.2K | 1 | |
| R3112 | | ERDS2TJ821 | 820 | 1 | |
| R3113 | | ERDS2TJ102 | 1K | 1 | |
| R3114 | | EVNE4AA00B54 | VARIABLE 50K | 1 | |
| R3115 | | ERDS2TJ102 | 1K | 1 | |
| R3116 | | ERDS2TJ272 | 2.7K | 1 | |
| R3117 | | ERDS2TJ103 | 10K | 1 | |
| R3118,3119 | | ERDS2TJ391 | 390 | 2 | |

| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| R3120,3121 | ERDS2TJ122 | 1.2K | 2 | |
| R3122 | ERDS2TJ562 | 5.6K | 1 | |
| R3123 | EVNE4AA00B24 | VARIABLE 20K | 1 | |
| R3125 | ERDS2TJ122 | 1.2K | 1 | |
| R3126 | ERDS2TJ152 | 1.5K | 1 | |
| R3127 | ERDS2TJ182 | 1.8K | 1 | |
| R3128 | ERDS2TJ471 | 470 | 1 | |
| R3129 | ERDS2TJ151 | 150 | 1 | |
| R3130 | ERDS2TJ222 | 2.2K | 1 | |
| R3131 | ERDS2TJ121 | 120 | 1 | |
| R3132 | ERDS2TJ103 | 10K | 1 | |
| R3133,3134 | ERDS2TJ152 | 1.5K | 2 | |
| R3135 | ERDS2TJ122 | 1.2K | 1 | |
| R3140,3141 | ERDS2TJ824 | 820K | 2 | |
| R3143 | ERDS2TJ473 | 47K | 1 | |
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| | | CAPACITORS | | |
| C3101 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C3102 | ECCW1H390JC5 | CERAMIC 50V 39P +-5% | 1 | |
| C3103 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C3105 | VCYSARH101KB | CERAMIC 50V 100P | 1 | |
| C3106 | ECEA1HSR47 | ELECTROLYTIC 50V 0.47 | 1 | |
| C3107 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C3108 | ECEA0JS221 | ELECTROLYTIC 6.3V 220 | 1 | |
| | OR ECEA0JU221 | ELECTROLYTIC 6.3V 220 | | |
| C3109 | VCYSARH471KB | CERAMIC 50V 470P | 1 | |
| C3110 | VCYSARH391KB | CERAMIC 50V 390P | 1 | |
| C3111 | VCYSARH561KB | CERAMIC 50V 560P | 1 | |
| C3112 | ECEA1HS010 | ELECTROLYTIC 50V 1 | 1 | |
| | OR ECEA1HU010 | ELECTROLYTIC 50V 1 | | |
| C3113 | ECCW1H680J5 | CERAMIC 50V 68P +-5% | 1 | |
| C3114 | VCYSARH331KB | CERAMIC 50V 330P | 1 | |
| C3115 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C3117-3122 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 6 | |
| C3123,3124 | ECCW1H390J5 | CERAMIC 50V 39P +-5% | 2 | |
| C3125 | ECEA0JS221 | ELECTROLYTIC 6.3V 220 | 1 | |
| | OR ECEA0JU221 | ELECTROLYTIC 6.3V 220 | | |
| C3126-3128 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 3 | |
| C3129 | ECCW1H390J5 | CERAMIC 50V 39P +-5% | 1 | |
| C3130 | ECEA1HS010 | ELECTROLYTIC 50V 1 | 1 | |
| | OR ECEA1HU010 | ELECTROLYTIC 50V 1 | | |
| C3131 | ECCW1H390J5 | CERAMIC 50V 39P +-5% | 1 | |
| C3132 | ECEA1ES3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| | OR ECEA1EU3R3 | ELECTROLYTIC 25V 3.3 | | |
| C3133,3134 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 2 | |
| C3135 | ECEA1HS010 | ELECTROLYTIC 50V 1 | 1 | |
| | OR ECEA1HU010 | ELECTROLYTIC 50V 1 | | |
| C3136 | VCYSARH681KB | CERAMIC 50V 680P | 1 | |
| C3137 | ECCW1H151J5 | CERAMIC 50V 150P +-5% | 1 | |
| C3138 | ECCW1H221J5 | CERAMIC 50V 220P +-5% | 1 | |
| | OR VCKW1H221JSA | CERAMIC 50V 220P +-5% | | |
| C3139 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C3140 | ECCW1H561J5 | CERAMIC 50V 560P +-5% | 1 | |
| | OR VCKW1H561JSA | CERAMIC 50V 560P +-5% | | |
| C3141 | ECCW1H820J5 | CERAMIC 50V 82P +-5% | 1 | |
| C3142 | ECEA1ES3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| | OR ECEA1EU3R3 | ELECTROLYTIC 25V 3.3 | | |
| C3143 | ECEA1ES4R7 | ELECTROLYTIC 25V 4.7 | 1 | |
| | OR ECEA1EU4R7 | ELECTROLYTIC 25V 4.7 | | |
| C3144 | ECEA1CS220 | ELECTROLYTIC 16V 22 | 1 | |
| | OR ECEA1CU220 | ELECTROLYTIC 16V 22 | | |
| C3145 | ECEA1ES3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| | OR ECEA1EU3R3 | ELECTROLYTIC 25V 3.3 | | |
| C3147 | ECEA1HS2R2 | ELECTROLYTIC 50V 2.2 | 1 | |
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| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| | | C/R COMPLEX COMPONENT | | |
| CR3101 | EXRP391K332 | 50V 390P, 3.3K | 1 | |
| CR3102 | EXRP103M184 | 50V 0.01 +-20%, 180K | 1 | |
| CR3103 | EXRP391K271 | 50V 390P, 270 | 1 | |
| CR3104 | EXRP271K152 | 50V 270P, 1.5K | 1 | |
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| | | DELAY LINE | | |
| DL3101 | EFDEN645A12P | | 1 | |
| | OR VLDS0003 | | | |
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| | | FILTER | | |
| FL3101 | ELB4M006 | | 1 | |
| | OR VLFS0011 | | | |
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| | | COILS | | |
| L3101-3103 | VLQS05R101K | 100 | 3 | |
| L3104 | VLQS05R270K | 27 | 1 | |
| L3105 | VLQS05R101K | 100 | 1 | |
| L3106,3107 | VLQS05R100K | 10 | 2 | |
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| | | MISCELLANEOUS | | |
| | VJHS0046 | PACK LEAD PIN | 1 | |
| | VMXS0366 | SPACER | 1 | |
| | VMZS0081 | SPACER | 1 | |
| | VSCS0494 | ANGLE | 1 | |
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| | | CHROMINANCE C.B.A | | |
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| | | INTEGRATED CIRCUITS | | |
| IC8101 | AN6366NK | | 1 | |
| IC8102 | MN6163A | | 1 | |
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| | | TRANSISTORS | | |
| Q8101-8104 | 2SC2021M(Q,R,S) | | 4 | |
| | OR | | | |
| | 2SD636(Q,R,S) | | | |
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| | | DIODES | | |
| D8101,8102 | MA165 | | 2 | |
| | OR 1SS119 | | | |
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| | | RESISTORS | | |
| R8101 | ERDS2TJ102 | 1K | 1 | |
| R8102 | ERDS2TJ121 | 120 | 1 | |
| R8103 | ERDS2TJ152 | 1.5K | 1 | |
| R8104 | ERDS2TJ122 | 1.2K | 1 | |
| R8105 | ERDS2TJ222 | 2.2K | 1 | |
| R8106 | ERDS2TJ272 | 2.7K | 1 | |
| R8107,8108 | ERDS2TJ682 | 6.8K | 2 | |
| R8109 | EVNE4AA00B54 | VARIABLE 50K | 1 | |
| R8110 | ERDS2TJ183 | 18K | 1 | |
| R8111 | ERDS2TJ271 | 270 | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| R8112 | | ERDS2TJ822 | 8.2K | 1 | |
| R8113 | | EVNE4AA00B53 | VARIABLE 5K | 1 | |
| R8114 | | ERDS2TJ122 | 1.2K | 1 | |
| R8115 | | ERDS2TJ822 | 8.2K | 1 | |
| R8116 | | ERDS2TJ183 | 18K | 1 | |
| R8117 | | ERDS2TJ471 | 470 | 1 | |
| R8119 | | ERDS2TJ223 | 22K | 1 | |
| R8120 | | ERDS2TJ102 | 1K | 1 | |
| R8121 | | ERDS2TJ103 | 10K | 1 | |
| R8122 | | ERDS2TJ470 | 47 | 1 | |
| R8123,8124 | | ERDS2TJ122 | 1.2K | 2 | |
| R8125 | | ERDS2TJ102 | 1K | 1 | |
| R8126 | | ERDS2TJ271 | 270 | 1 | |
| R8127 | | ERDS2TJ102 | 1K | 1 | |
| R8129 | | ERDS2TJ822 | 8.2K | 1 | |
| R8130 | | ERDS2TJ183 | 18K | 1 | |
| R8131 | | ERDS2TJ562 | 5.6K | 1 | |
| R8132 | | ERDS2TJ561 | 560 | 1 | |
| R8133 | | ERDS2TJ273 | 27K | 1 | |
| R8134 | | ERDS2TJ153 | 15K | 1 | |
| R8135 | | ERDS2TJ561 | 560 | 1 | |
| R8136 | | ERDS2TJ472 | 4.7K | 1 | |
| R8137 | | ERDS2TJ821 | 820 | 1 | |
| R8138 | | ERDS2TJ472 | 4.7K | 1 | |
| R8139 | | ERDS2TJ122 | 1.2K | 1 | |
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| | | | CAPACITORS | | |
| C8101,8102 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 2 | |
| C8103 | | VCYW1E183KX | CERAMIC 25V 0.018 | 1 | |
| C8104 | | VCYSARH680J | CERAMIC 50V 68P +-5% | 1 | |
| C8105,8106 | | VCYSARH121KB | CERAMIC 50V 120P | 2 | |
| C8107 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C8108 | | ECEA1HS010 | ELECTROLYTIC 50V 1 | 1 | |
| | | OR ECEA1HU010 | ELECTROLYTIC 50V 1 | | |
| C8109 | | ECEA0JS470 | ELECTROLYTIC 6.3V 47 | 1 | |
| | | OR ECEA0JU470 | ELECTROLYTIC 6.3V 47 | | |
| C8110 | | VCYSARH5R6KC | CERAMIC 50V 5.6P | 1 | |
| C8111 | | MCV03R200ER | TRIMMER 20P | 1 | |
| C8112 | | VCYSARH102KB | CERAMIC 50V 0.001 | 1 | |
| C8113 | | ECEA0JS221 | ELECTROLYTIC 6.3V 220 | 1 | |
| | | OR ECEA0JU221 | ELECTROLYTIC 6.3V 220 | | |
| C8114 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C8115 | | VCYSARH102KB | CERAMIC 50V 0.001 | 1 | |
| C8116 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C8117 | | VCYW1C104MX | CERAMIC 16V 0.1 +-20% | 1 | |
| C8118,8119 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 2 | |
| C8120 | | VCYSARC222NX | CERAMIC 16V 0.0022 +-30% | 1 | |
| C8121 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C8122 | | VCYW1C104MX | CERAMIC 16V 0.1 +-20% | 1 | |
| C8123-8130 | | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 8 | |
| C8131 | | VCYSARH680J | CERAMIC 50V 68P +-5% | 1 | |
| C8132 | | VCYSARH271KB | CERAMIC 50V 270P | 1 | |
| C8133 | | VCYSARH680J | CERAMIC 50V 68P +-5% | 1 | |
| C8134 | | VCYSARC472NX | CERAMIC 16V 0.0047 +-30% | 1 | |
| C8135 | | VCYSARH680J | CERAMIC 50V 68P +-5% | 1 | |
| C8136 | | VCYSARH220J | CERAMIC 50V 22P +-5% | 1 | |
| C8137 | | ECEA1ES3R3 | ELECTROLYTIC 25V 3.3 | 1 | |
| | | OR ECEA1EU3R3 | ELECTROLYTIC 25V 3.3 | | |
| C8138 | | ECEA1ES4R7 | ELECTROLYTIC 25V 4.7 | 1 | |
| | | OR ECEA1EU4R7 | ELECTROLYTIC 25V 4.7 | | |
| C8139 | | VCYW1C104MX | CERAMIC 16V 0.1 +-20% | 1 | |
| C8140 | | VCYSARH150JC | CERAMIC 50V 15P +-5% | 1 | |
| C8142 | | VCYW1C104MX | CERAMIC 16V 0.1 +-20% | 1 | |
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| | | | DELAY LINE | | |
| DL8101 | | EFDVN645B15G | | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
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| | | | FILTER | | |
| FL8101 | | ELB5G040 | | 1 | |
| | | OR VLFS0008 | | | |
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| | | | COILS | | |
| L8101 | | VLQS05R471K | 470 | 1 | |
| L8102 | | VLQS05R221K | 220 | 1 | |
| L8103 | | VLQS05R331K | 330 | 1 | |
| L8104,8105 | | VLQS05R101K | 100 | 2 | |
| L8106,8107 | | VLQS05R181K | 180 | 2 | |
| L8108 | | VLQS66R102K | 1M | 1 | |
| L8109 | | VLQS05R470K | 47 | 1 | |
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| | | | CRYSTAL OSCILLATOR | | |
| X8101 | | VSXS0003 | | 1 | |
| | | OR VSX0060 | | | |
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| | | | MISCELLANEOUS | | |
| | | VJHS0046 | PACK LEAD PIN | 1 | |
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| | | | TV DEMODULATOR UNIT | | |
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| | | | INTEGRATED CIRCUITS | | |
| IC701 | | AN5135K | | 1 | |
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| | | | TRANSISTORS | | |
| Q701 | | 2SC2188 | | 1 | |
| Q702 | | 2SD637(Q,R) | | 1 | |
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| | | | DIODE | | |
| D701 | | MA27T | | 1 | |
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| | | | RESISTORS | | |
| R702,703 | | ERDS2TJ562 | 5.6K | 2 | |
| R704 | | ERDS2TJ271 | 270 | 1 | |
| R705 | | ERDS2TJ221 | 220 | 1 | |
| R706,707 | | ERDS2TJ821 | 820 | 2 | |
| R708 | | ERDS2TJ561 | 560 | 1 | |
| R709 | | ERDS2TJ470 | 47 | 1 | |
| R710 | | ERDS2TJ122 | 1.2K | 1 | |
| R711 | | ERDS2TJ474 | 470K | 1 | |
| R712 | | ERDS2TJ183 | 18K | 1 | |
| R713 | | ERDS2TJ221 | 220 | 1 | |
| R714 | | ERDS2TJ821 | 820 | 1 | |
| R715 | | AVNE4AA0B682 | VARIABLE 6.8K | 1 | |
| | | OR EVNE4AA00B53 | VARIABLE 5K | | |
| R716 | | ERDS2TJ471 | 470 | 1 | |
| R718 | | AVNE4AA0B103 | VARIABLE 10K | 1 | |
| | | OR EVNE4AA00B14 | VARIABLE 10K | | |
| R719 | | ERDS2TJ272 | 2.7K | 1 | |
| R720 | | ERDS2TJ680 | 68 | 1 | |

| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| R721 | ERDS1TJ680 | 1/2W 68 | 1 | |
| R722 | ERDS1TJ101 | 1/2W 100 | 1 | |
| R723 | ERDS2TJ101 | 100 | 1 | |
| R724 | ERDS2TJ562 | 5.6K | 1 | |
| R726 | ERDS2TJ222 | 2.2K | 1 | |
| R727 | ERDS2TJ102 | 1K | 1 | |
| R729 | ERDS2TJ681 | 680 | 1 | |
| R730 | ERDS2TJ104 | 100K | 1 | |
| R732 | ERDS2TJ222 | 2.2K | 1 | |
| R734 | ERDS2TJ102 | 1K | 1 | |
| R735 | ERDS2TJ152 | 1.5K | 1 | |
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| | | CAPACITORS | | |
| C701-704 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 4 | |
| C705 | ECEA1CK330 | ELECTROLYTIC 16V 33 | 1 | |
| C706,707 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 2 | |
| C708 | ECQV05474JC | POLYESTER 50V 0.47 +-5% | 1 | |
| | OR ECQV05474JZ | POLYESTER 50V 0.47 +-5% | | |
| | OR ECQV1H474JZ | POLYESTER 50V 0.47 +-5% | | |
| C709 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C710 | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C713 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C715 | ECCW1H180JC5 | CERAMIC 50V 18P +-5% | 1 | |
| C716 | ECKW1H101KB5 | CERAMIC 50V 100P | 1 | |
| C717 | ECCW1H820JR5 | CERAMIC 50V 82P +-5% | 1 | |
| C718 | ECCW1H120JC5 | CERAMIC 50V 12P +-5% | 1 | |
| C719 | ECCW1H220JC5 | CERAMIC 50V 22P +-5% | 1 | |
| C720,721 | ECQV05473JC | POLYESTER 50V 0.047 +-5% | 2 | |
| | OR ECQV05473JZ | POLYESTER 50V 0.047 +-5% | | |
| | OR ECQV1H473JZ | POLYESTER 50V 0.047 +-5% | | |
| C722 | ECEA1HKR47 | ELECTROLYTIC 50V 0.47 | 1 | |
| C723 | ECEA1CK470 | ELECTROLYTIC 16V 47 | 1 | |
| C726 | ECCW1H040CC5 | CERAMIC 50V 4P +-0.25P | 1 | |
| C727 | ECQM1H223KV | POLYESTER 50V 0.022 | 1 | |
| | OR ECQM1H223KZ | POLYESTER 50V 0.022 | | |
| C728 | ECCW1H560JC5 | CERAMIC 50V 56P +-5% | 1 | |
| C729 | ECEA1EK4R7 | ELECTROLYTIC 25V 4.7 | 1 | |
| C731 | ECCW1H270JC5 | CERAMIC 50V 27P +-5% | 1 | |
| C733 | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C734 | VCYSARC103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C736 | ECCW1H560JC5 | CERAMIC 50V 56P +-5% | 1 | |
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| | | FILTERS | | |
| FL701 | SFE4R5MB4 | CERAMIC | 1 | |
| FL702 | EFCS4R5MW3 | CERAMIC | 1 | |
| | OR TFCS4R5MW3 | CERAMIC | | |
| FL703 | VLFS0006 | | 1 | |
| FL704 | VSXS0004 | | 1 | |
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| | | COILS | | |
| L702 | ELQR82KB | 0.82 | 1 | |
| | OR TLQR82N205C | 0.82 | | |
| L703 | VLQS66R4R7K | 4.7 | 1 | |
| L705 | ELQR47KB | 0.47 | 1 | |
| | OR TLQR47N205C | 0.47 | | |
| L706 | VLQS66R120K | 12 | 1 | |
| L707 | VLQS66R680K | 68 | 1 | |
| L708 | VLQS66R4R7K | 4.7 | 1 | |
| L709 | VLQS66R470K | 47 | 1 | |
| L710 | VLQS66R680K | 68 | 1 | |
| L712 | VLQS66R220K | 22 | 1 | |
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| Ref. No. | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|
| | | TRANSFORMERS | | |
| T701 | EIV7EF002B | | 1 | |
| T702 | EIV7EF001B | | 1 | |
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| | | MISCELLANEOUS | | |
| | VJHS0045 | PACK PIN | 3 | |
| | VSCS0389 | SHIELD CASE | 1 | |
| | VSCS0390 | SHIELD CASE | 1 | |
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| | | CHANNEL SELECT C.B.A | | |
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| | | INTEGRATED CIRCUITS | | |
| IC7301 | UPC1363C | | 1 | |
| | OR UPC1363CA | | | |
| IC7302 | AN5070 | | 1 | |
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| | | TRANSISTORS | | |
| Q7301 | 2SB642(Q,R,S) | | 1 | |
| Q7302-7304 | 2SD637(Q,R,S) | | 3 | |
| Q7306,7307 | 2SD637(Q,R,S) | | 2 | |
| Q7311 | 2SD637(R,S) | | 1 | |
| Q7312 | 2SD637(Q,R,S) | | 1 | |
| Q7313 | 2SB642(Q,R,S) | | 1 | |
| Q7314 | 2SD637(Q,R,S) | | 1 | |
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| | | DIODES | | |
| D7301-7314 | MA166C | | 14 | |
| D7315-7329 | MA166 | | 15 | |
| D7331,7332 | MA165 | | 2 | |
| D7333 | MA166C | | 1 | |
| D7335 | MA166 | | 1 | |
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| | | RESISTORS | | |
| R7301 | ERDS2TJ563 | 56K | 1 | |
| R7304 | ERDS2TJ273 | 27K | 1 | |
| R7305 | ERDS2TJ563 | 56K | 1 | |
| R7306 | ERDS2TJ683 | 68K | 1 | |
| R7307 | ERDS2TJ103 | 10K | 1 | |
| R7310,7311 | ERDS2TJ562 | 5.6K | 2 | |
| R7312,7313 | ERDS2TJ472 | 4.7K | 2 | |
| R7314 | ERDS2TJ562 | 5.6K | 1 | |
| R7315 | ERDS2TJ333 | 33K | 1 | |
| R7316 | ERDS2TJ472 | 4.7K | 1 | |
| R7317 | ERDS2TJ104 | 100K | 1 | |
| R7318 | ERDS2TJ224 | 220K | 1 | |
| R7319 | ERDS2TJ561 | 560 | 1 | |
| R7320 | ERDS2TJ103 | 10K | 1 | |
| R7321 | ERDS2TJ473 | 47K | 1 | |
| R7322 | ERDS2TJ223 | 22K | 1 | |
| R7329,7330 | ERDS2TJ104 | 100K | 2 | |
| R7331 | ERDS2TJ153 | 15K | 1 | |
| R7332,7333 | ERDS2TJ563 | 56K | 2 | |
| R7334 | ERDS2TJ474 | 470K | 1 | |
| R7335 | ERDS2TJ154 | 150K | 1 | |
| R7337 | ERDS2TJ223 | 22K | 1 | |
| R7338 | ERDS2TJ103 | 10K | 1 | |
| R7339 | ERDS2TJ472 | 4.7K | 1 | |
| R7340-7342 | ERDS2TJ104 | 100K | 3 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| R7343 | | ERDS2TJ105 | 1M | 1 | |
| R7348 | | ERDS2TJ563 | 56K | 1 | |
| R7349 | | ERDS2TJ153 | 15K | 1 | |
| R7350,7351 | | ERDS2TJ223 | 22K | 2 | |
| R7352 | | ERDS2TJ3R3 | 3.3 | 1 | |
| VR7301 | | EWELJ4A00B24 | VARIABLE 20K | 1 | |
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| | | | CAPACITORS | | |
| C7301 | | ECEB1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C7302 | | ECQM1H223KV | POLYESTER 50V 0.022 | 1 | |
| C7303 | | VCYST16103NY | CERAMIC 16V 0.01 +-30% | 1 | |
| C7306,7307 | | VCYST25332NX | CERAMIC 25V 0.0033 +-30% | 2 | |
| C7308 | | ECEA1HN4R7S | ELECTROLYTIC 50V 4.7 | 1 | |
| C7309 | | ECCW1H101JC5 | CERAMIC 50V 100P +-5% | 1 | |
| C7310 | | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C7311 | | ECQM1H103KV | POLYESTER 50V 0.01 | 1 | |
| C7312 | | ECEA1HK010 | ELECTROLYTIC 50V 1 | 1 | |
| C7315 | | ECQM1H103KV | POLYESTER 50V 0.01 | 1 | |
| C7316 | | ECKW1H103ZF5 | CERAMIC 50V 0.01 | 1 | |
| | | | +80%-20% | | |
| C7317 | | ECQM1H103KV | POLYESTER 50V 0.01 | 1 | |
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| | | | | | |
| | | | | | |
| | | | PIN HEADERS | | |
| P7301 | | VJPS0015 | 10P | 1 | |
| P7302 | | VJPS0012 | 4P | 1 | |
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| | | | SWITCH | | |
| SW7301 | | VSSS0025 | SELECT | 1 | |
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| | | | MISCELLANEOUS | | |
| | | VMZS0163 | BARRIER | 1 | |
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| | | | ELECTRICAL PARTS | | |
| | | | LOCATED ON CHASSIS | | |
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| | | TJE98101 | CHECK TERMINAL | 12 | |
| | | TNV56751F2R | UHF/VHF TUNER UNIT | 1 | |
| | | VEJS0020 | VHF BLOCK | 1 | |
| | | VEKS1523 | ANT TERMINAL UNIT | 1 | |
| | | VEKS1524 | ANT CABLE | 1 | |
| | | VEKS1525 | RF CABLE | 1 | |
| | ⚠ | VEKS1534 | AC CORD UNIT | 1 | |
| | | VEPS00269A | REEL SENSOR UNIT | 1 | |
| | | VEQS0252 | RF CONVERTER | 1 | |
| | | VEQS0253 | RF CONVERTER | 1 | |
| | | VEQS0254 | RF CONVERTER | 1 | |
| | | VEQS0255 | RF CONVERTER | 1 | |
| | | VJBS00288 | PHOTO TRANSISTOR P.C.B | 1 | |
| | | VJBS00296 | CONNECTION P.C.B | 1 | |
| | | VJES0003 | CHECK TERMINAL | 3 | |
| | | VJES0004 | CHECK TERMINAL | 10 | |
| | | VJES0005 | CHECK TERMINAL | 4 | |
| | | VJES0007 | CHECK TERMINAL | 45 | |
| | | VJES0008 | CHECK TERMINAL | 2 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
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| | | VLTS0002 | BALLOON CORE | 1 | |
| | | VSCS0283 | ANT COVER | 1 | |
| | | VXKS0342 | SENSOR LED UNIT | 1 | |
| | | XTV3+10G | TAPPING SCREW 3X10 | 1 | |
| | | XTV3+8FX | TAPPING SCREW 3X8 | 3 | |
| Q1551,1552 | | PN150NV | PHOTO TRANSISTOR | 2 | |
| D1551 | | LN59 | DIODE LED | 1 | |
| R1551,1552 | | ERDS2TJ100 | RESISTOR 10 | 2 | |
| P1551 | | VJPS0115 | PIN HEADER 7P | 1 | |
| SW1551 | | VSMS0009 | CASSETTE UP/DOWN SWITCH | 1 | |
| SW1552 | | VSMS0010 | CASSETTE IN SWITCH | 1 | |
| SW1553 | | VSMS0007 | SAFETY TAB SWITCH | 1 | |
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| | | | IR WIRELESS | | |
| | | | RECEIVING DETECTOR C.B.A | | |
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| | | | INTEGRATED CIRCUITS | | |
| IC1 | | UPC1373H | | 1 | |
| | | OR UPC1373HA | | | |
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| | | | | | |
| | | | DIODE | | |
| D1 | | PH302 | | 1 | |
| | | OR PN313 | | | |
| | | OR TPS703 | | | |
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| | | | RESISTORS | | |
| R1 | | ERDS2TJ102 | 1K | 1 | |
| R2 | | ERDS2TJ560 | 56 | 1 | |
| R3 | | ERDS2TJ224 | 220K | 1 | |
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| | | | CAPACITORS | | |
| C1 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C2 | | ECEA1EK4R7 | ELECTROLYTIC 25V 4.7 | 1 | |
| C3 | | ECEA1CK100 | ELECTROLYTIC 16V 10 | 1 | |
| C4 | | AMZV50K183 | POLYESTER 50V 0.018 | 1 | |
| C5 | | ECEA1CK470 | ELECTROLYTIC 16V 47 | 1 | |
| C6 | | APSV100J182 | POLYESTER 100V 0.0018 +-5% | 1 | |
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| | | | TRANSFORMER | | |
| T1 | | ELM7Q206A | | 1 | |
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| | | | IR WIRELESS TRANSMITTER C.B.A | | |
| | | | | | |
| | | | INTEGRATED CIRCUITS | | |
| IC1 | | UPD6108C-003 | | 1 | |
| | | | | | |
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| Ref. No. | | Part No. | Part Name & Description | Pcs / Set | Remarks |
|---|---|---|---|---|---|
| | | | | | |
| | | | TRANSISTOR | | |
| Q1 | | 2SD1458 | | 1 | |
| | | | | | |
| | | | | | |
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| | | | DIODE | | |
| D1 | | LN66NC | LED | 1 | |
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| | | | | | |
| | | | RESISTORS | | |
| R1 | | ERDS2TJ102 | 1K | 1 | |
| R2 | | ERDS2TJ473 | 47K | 1 | |
| R3 | | ERDS2TJ1R0 | 1 | 1 | |
| | | | | | |
| | | | | | |
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| | | | CAPACITORS | | |
| C1,2 | | ECKF1H471KB | CERAMIC 50V 470P | 2 | |
| C3 | | ECEAOJK101 | ELECTROLYTIC 6.3V 100 | 1 | |
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| | | | CRYSTAL OSCILLATOR | | |
| X1 | | CSB455PB6T | | 1 | |
| | | OR EFOA455KO5B1 | | | |
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